

TUSTIN

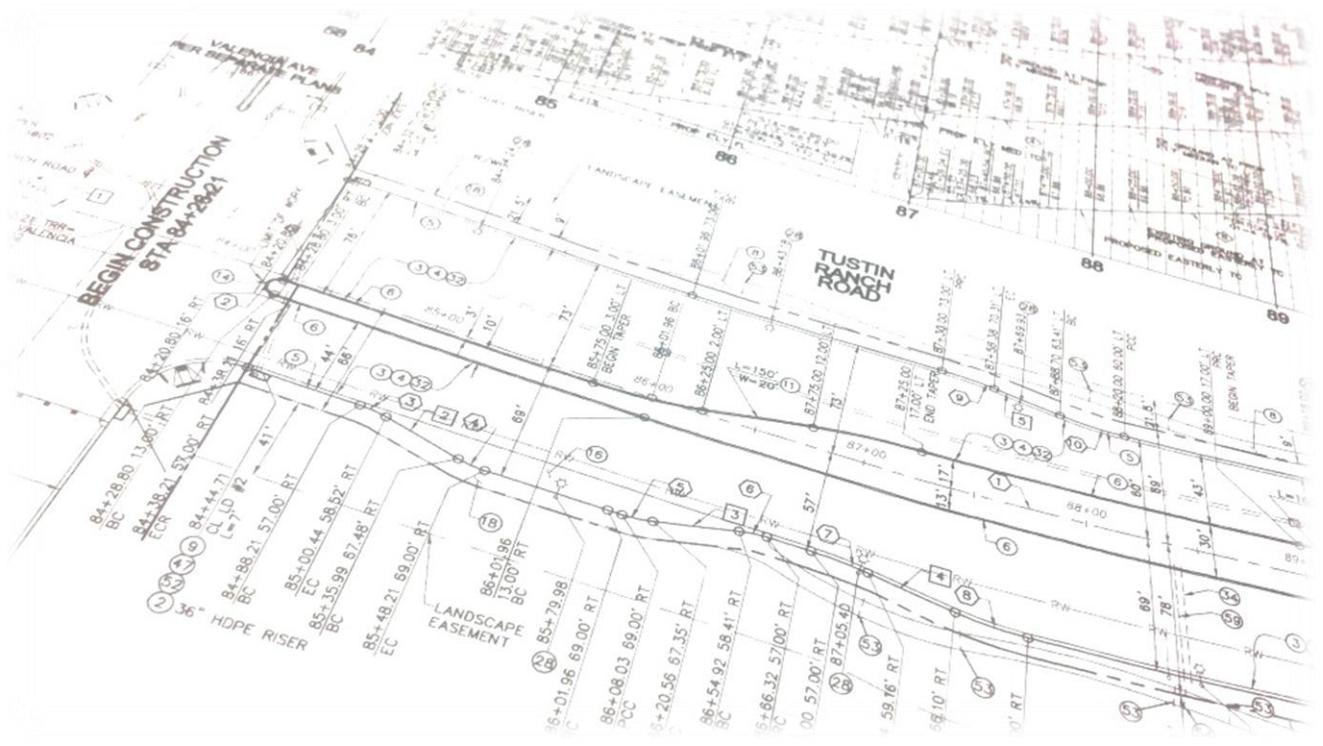


BUILDING OUR FUTURE
HONORING OUR PAST

STANDARD PLANS AND DESIGN STANDARDS

FOR PUBLIC WORKS
CONSTRUCTION

2012 EDITION



City of Tustin

DEPARTMENT OF PUBLIC WORKS
300 CENTENNIAL WAY
TUSTIN, CA 92780



STANDARD PLANS AND DESIGN STANDARDS FOR PUBLIC WORKS CONSTRUCTION

2012 Edition

THIS EDITION SUPERSEDES ANY AND ALL PREVIOUS REVISIONS OF THE STANDARD PLANS AND DESIGN STANDARDS FOR PUBLIC WORKS IMPROVEMENTS CONSTRUCTED IN THE PUBLIC RIGHTS OF WAY OR IMPROVEMENTS TO BE MAINTAINED BY PUBLIC FUNDS, WHICH WERE APPROVED ON JANUARY 19, 1981, BY RESOLUTION NO. 81-4.

Prepared under the direct supervision of:
Dana R. Kasdan, P. E.
Engineering Services Manager
RCE No. 30559 – RTE No. 1202

Approved by:
Douglas S. Stack, P.E.
Director of Public Works / City Engineer
RCE No. 54637

By: Dana R. Kasdan 10/22/2012
Date

By: Douglas S. Stack 10/22/2012
Date

STANDARD NOTES AND PLANS FOR PUBLIC WORKS CONSTRUCTION

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INTRODUCTION

All improvement work within the public right-of-way shall be conducted and completed in a manner and methodology that conforms to the standards of practice adopted by the City of Tustin. All materials, methods and manner for construction shall be in strict adherence to the applicable portions of these standards and the latest editions of the American Public Works Association/Associated General Contractors (APWA/AGC) Standard Specifications and Standard Plans for Public Works Construction (Greenbook), the latest edition of the American Water Works Association Standard Plans and associated specifications, and where appropriate, standard drawings from other local agencies such as the County of Orange and the Standard Drawings and Specifications of the California Department of Transportation (Caltrans).

Although these standard plans and specifications are provided to serve as guides and templates for design consistency as well as practical and efficient maintenance, they are by no means intended to replace or substitute good engineering practice on the part of the design engineer. These design standard plans may be called out on the plans by construction notes referring to this document. However, when the design engineer deems it necessary to deviate from, modify these standard plans, or substitute an approved standard drawing from another resource, the deviation, modification or substitution must be rendered on a detail sheet in the plan set with complete detailing, appropriate notes and specifications. The deviation, modification or substitution must be approved by the City Engineer prior to incorporating the design into the improvement plan layout. "Stick-on" or adhesive applications are not allowed on the original drawings. All archival drawings shall be prepared on 24-inch by 36-inch 0.4 mil film Mylar. Pre-formatted border and title block layout can be obtained from the city in digital CADD format. Standard drawings from the County of Orange, Caltrans, or other appropriate agencies may be acceptable for alternative designs, modified designs or substitutions with the prior approval of the City Engineer. The design engineer shall adhere to the project entitlement conditions and the specific standard plan requirements as stated in the conditions of approval as adopted by the city. The design engineer of record shall be responsible for all design elements shown on the approved drawings.

GENERAL NOTES

1. All work shall conform to these standards and to the latest edition of the APWA/AGC "Standard Specifications for Public Works Construction" and associated Standard Drawings (Greenbook) and supplements thereto, and where appropriate, the latest editions of the Highway Design Manual of the California Department of Transportation and the California Manual on Uniform Traffic Control Devices (CA MUTCD), the American Water Works Association (AWWA), the Irvine Ranch Water District (IRWD) Standards, the Orange County Sanitation District (OCSD), the Orange County Fire Authority (OCFA) Standards and Specifications, The County of Orange Standards for Street and Storm Drain Construction, the County of Orange Monumentation Policy, The Orange County Transportation Authority Standards, the Construction BMP Handbook of the California Stormwater Quality Association, and the American's with Disabilities Act (ADA) Department of

Justice Standards for Accessible Design, unless specifically noted otherwise on these plans.

2. All work shall conform to the project conditions of approval and all city ordinances and applicable regulatory codes.
3. The contractor shall notify the Public Works Department at 714-573-3150 at least **48 hours** prior to beginning any work. Inspection hours shall be between 7:00 a.m. and 4:00 p.m. Monday through Friday, excluding holidays.
4. All work within the public right-of-way or within a publicly owned or maintained easement shall require an encroachment permit or “temporary right of entry” to be obtained from the Public Works Department prior to initiating any work.
5. The Contractor shall be responsible for providing all testing required by the City.
6. The Contractor shall maintain a signed set of approved construction plans and related documentation and a copy of the construction permit on the job site during working operations.
7. The Contractor shall have a designated “responsible party” or representative on the project site during all working operations.
8. All work shall comply with the stormwater runoff conditions and requirements in effect at the time of issuance of the permit for construction as required by the California Regional Water Quality Control Board and the City’s adopted Local Implementation Plan.
9. Working hours shall be as established and stated on the approved encroachment permit or “temporary right of entry” letter. These hours may be subject to modifications depending upon site conditions during construction as determined by the City Engineer or by limitations imposed by the approved traffic control plan.
10. The contractor shall restore or replace in kind all existing improvements disturbed during construction, including, but not limited to, street striping, traffic signal loops, landscaping and irrigation facilities, signage and markers.
11. All work performed shall be guaranteed for a minimum of one year from the date of acceptance by the City.
12. One-sack slurry backfill shall be used for all trench crossings of streets and all trenches within alley ways.

TRAFFIC CONTROL AND SAFETY ELEMENTS

1. All traffic control, temporary signage and striping, barricading and detouring shall be as depicted on the approved traffic control plan, and per the requirements of the California Manual on Uniform Traffic Control Devices (CA MUTCD). All layouts shall be reviewed by the project inspector for conformance with the approved plan.

2. No street shall be closed to traffic without written permission from the City Traffic Engineer, except when otherwise directed by law enforcement or fire officials.
3. The contractor shall make every effort to provide for smooth traffic flow and safety within and around his work zone and project limits. Access shall be maintained for all properties adjacent to the work.
4. Detouring operations for a period of six consecutive calendar days, or more, shall require the installation of temporary street striping and removal of interfering striping by sandblasting. The detour striping plan or construction traffic control plan must be submitted to the City Traffic Engineer for review and acceptance.
5. All traffic control devices shall be restored to their original condition at the end of the work to the satisfaction of the City Traffic Engineer.
6. Traffic control devices (TCD) shall remain visible and operational at all times.

UTILITIES AND UNDERGROUND WORK

1. All utility companies having facilities within the area of work shall be notified at least **48 hours** prior to beginning work.
2. All utility services shall be installed below water mains and appurtenances when possible with two feet minimum clearance where the lines cross. Utility conduits, laterals and services shall not be allowed within five feet of parallel water facilities. Separation of sewer, water and reclaimed water lines shall conform to State of California, Department of Health Standards and City Water Standards requirements.
3. All utility services shall be installed a minimum of 2-feet beyond the right-of-way line prior to paving of streets.
4. Water facilities and systems shall comply with City Water Division Standards and Specifications and shall be inspected by the Water Division Inspector.
5. All required water facilities, including fire hydrants and appurtenances, shall be accessible and fully operational prior to constructing any permanent structure using combustible materials.
6. All utility service lines shall have a location identity marking chiseled on the top of curb (i.e. "S" for sewer, "G" for gas, "W" for water).
7. All VCP shall be laid with mechanical joints, "Wedgelock", "Speed Seal", "Band Seal" or approved equal.
8. Sewer contractors shall furnish the City Engineer with the location of wyes and house connections as constructed. All sewer manhole frames and covers shall be left 6-inches below finished grade. The contractor shall raise the manhole and covers flush with the finished grade upon completion of surfacing.

9. Backfill of all trenches shall be compacted to a minimum relative compaction of 90% in the upper three feet, measured from the pavement surface, or from finished grade where there is no pavement. Compaction shall be verified by a soils report prepared by a registered civil engineer or geotechnical engineer.
10. Trench resurfacing shall be completed as soon as possible, but no later than five working days after subgrade compaction has been completed.
11. All utilities shall be bored under arterial highways unless otherwise approved by the City Engineer.
12. No street shall be open-cut if paved or sealed within the previous five years, except for emergency repairs or as deemed necessary by the City Engineer. Such open cuts shall be cold planed and repaved with an asphalt concrete (AC) overlay to the limits required by the City Engineer.
13. All slurry sealed streets shall have the existing raised markers replaced in kind.

STREET IMPROVEMENTS

STD. PLAN SECTION NO. 100

1. All streets shall have a minimum pavement section as determined by "R" value and traffic index study based on a 20-year life. A minimum 5" AC over a minimum of 6" aggregate base (AB) is required, even if the study indicates a lesser section is adequate. The minimum traffic index (TI) shall be 5.
2. Street improvements shall be constructed to the vertical and horizontal dimensions shown in these standard drawings, and as required by the conditions of approval. Street widths shall be measured from the top of curb.
3. The maximum length of residential cul-de-sac streets shall be 500', as measured along the centerline of the cul-de-sac street, from the nearest intersecting street centerline to the cul-de-sac radius point.
4. The maximum length of industrial and commercial cul-de-sac streets shall be 1000', as measured along the centerline of the cul-de-sac street, from the nearest intersecting street centerline to the cul-de-sac radius point.

STREET IMPROVEMENT DETAILS

STD. PLAN SECTION NO. 200

1. All street curb and gutter improvements shall be monolithic construction. The type shall be as specified by the City Engineer. All new curbs and gutters shall be constructed with a minimum grade of 0.50%. Any deviation from this minimum grade requirement will require the approval of the City Engineer.

2. Cross gutters are not permitted. However, there may be physical constraints which justify their installation, subject to approval by the City Engineer.
3. All streets shall have concrete sidewalks that conform with all the requirements of an ADA accessible pathway. Accessibility ramps shall be required at all intersections in full conformance with the latest edition of the ADA Standards for Accessible Design. In areas with expansive soil, the ground shall be presaturated for three (3) consecutive days, unless otherwise directed by the City Engineer. Prior to placing concrete, the subgrade shall be tested to a depth of 18" to assure a minimum optimum moisture content of 125% is achieved.
4. Driveway aprons shall be constructed per the applicable conditions of approval for the project, and as required to meet the access conditions depending on type of development or as specified by the City Engineer.

STORM DRAINS, FLOOD CONTROL AND WATER QUALITY

STD. PLAN SECTION NO. 300

1. Streets, roads, highways and freeways of 5,000 square feet or more of paved surface shall incorporate principles contained in the US EPA guidance document: "Managing Wet Weather with Green Infrastructure: Green Streets" in a manner consistent with the maximum extent practicable standard. This category includes any paved surface used for the transportation of automobiles, trucks, motorcycles and other vehicles and excludes any routine road maintenance activities where the footprint is not changed.
2. The California Stormwater Quality Association (CASQA) BMP Handbook should be used as a general reference and starting point for selecting the appropriate BMP.
3. Onsite stormwater conveyance systems shall be designed and constructed per these standards and the design criteria of the latest requirements of the Drainage Area Management Plan (DAMP) and the City of Tustin Local Implementation Plan (LIP). Storm water flows conveyed to a public street shall be directed to the public storm drain system and shall not flow into any adjoining property or development. All projects shall comply with the current State Water Resources Control Board (SWRCB) Construction General Permit and the City of Tustin Municipal General Permit requirements.
4. Storm drains shall also be constructed within or adjacent to the development as called for in the "Master Plan of Drainage, El Modena - Irvine Area" dated November 1969, or in the Run-off Management Plan for Tustin Legacy dated December 2004, or other applicable City approved drainage plans.
5. All storm drains shall be designed per the parameters outlined in the latest edition of the Orange County Flood Control District "Hydrology Manual" and as required by

the City Engineer. A hydrology study shall be submitted for approval by the City Engineer.

Collection systems shall be designed for a minimum 10-year storm frequency except in sump conditions where a 25-year storm frequency shall be used. Major drains and channels shall be designed based on a 25-year storm frequency. Drainage facilities shall be designed for open channel hydraulics, unless otherwise approved by the City Engineer.

6. System designs that require facilities or conveyance devices not found within these standards shall refer to the latest edition of the County of Orange Standard for Storm Drain Construction or latest edition of the American Public Works Association (APWA) Standards, as approved by the City Engineer.
7. A "Nuisance Water" drainage system shall be constructed in all developments and shall connect to the storm drain system. The nuisance water drainage system shall be designed to collect low flows only and not peak storm flows. Required pipe size for nuisance water systems shall be a minimum of 12" diameter. Inlets shall be type OS per Standard No. 301.

Storm and nuisance waters will not be allowed to be channeled in street gutters for any accumulative distance in excess of 1000'. In addition, no surface water flows will be allowed to drain across any public pedestrian way.

8. A standard junction structure with manhole shall be constructed at all intersections of storm drain lines.
9. A standard access manhole shall be constructed at all major changes in grade or alignment of the pipe and at intervals of not more than 300' for 36" diameter pipe and below. Larger pipes may have manholes located at intervals greater than 300' but not more than 500', unless otherwise approved by the City Engineer.
10. Reinforced concrete pipe (RCP) shall be used for all drainage systems unless otherwise approved by the City Engineer. RCP shall be of the class or D load necessary to support the load imposed on the line.
11. Provide stenciling or labeling of all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language. Examples include "NO DUMPING - DRAINS TO OCEAN" and/or other graphical icons to discourage illegal dumping.
12. The minimum pipe size for storm drain systems, including catch basin leads, shall be 24" diameter unless otherwise approved by the City Engineer.
13. The minimum cover on all storm drain pipes shall be at least 42" below finished surface. Pipe bedding material shall be 4" minimum of ¾" crushed rock and the remainder backfilled to 12" above the pipe with imported sand having a minimum Sand Equivalent (SE) of 30. All backfill material up to subgrade shall be

compacted to a minimum 90% relative density and material above subgrade shall be compacted to a minimum 95% relative density. Compaction tests shall be performed by a City approved Lab utilizing California Test Method Nos. 216 & 231. One sack slurry may be required above the pipe zone.

14. Once storm water runoff enters a storm drain system it may not outlet to a City street or across any accessible pedestrian pathway.
15. Upon completion of the storm drain system the pipe shall be documented by digital video by a closed circuit camera (CCTV) by the contractor at no expense to the City. The final video shall be provided to the City on DVD for review and records.

TRAFFIC

STD. PLAN SECTION NO. 500

1. Street name signs shall be erected at all intersections, per City Standard No. 503, and at all locations designated by the City Engineer and as shown in City Standard Nos. 503, 504, 506 and 507.
2. Traffic control signing and marking shall include intersection stop signs, speed limit signs, parking restriction signs, miscellaneous traffic control signs and traffic striping and legends. Said signing and marking shall be per the California Manual on Uniform Traffic Control Devices (CA MUTCD), latest edition, and City Standards and shall be erected where designated by the City Engineer. Traffic striping and painted legends shall be installed prior to opening streets for public use.
3. New traffic signals will be required as determined by a traffic study of traffic warrants or predicted traffic warrants. If the configuration, geometrics or traffic patterns created by a new development creates an impact deemed significant as determined by an approved traffic study and requires modification of an existing traffic signal, such modification shall be the responsibility of the developer.
4. New traffic signal controller cabinets shall be located at least 30 feet from the BCR/ECR, or as otherwise approved by the City Engineer.
5. Geometric Design, including Intersection Design shall be per the latest edition of the Highway Design Manual of the California Department of Transportation (Caltrans).

WATER

STD. PLAN SECTION NOS. 1000, 1100, 1200

NOTE: This Section is applicable to the Tustin Water Service Area. Portions of the City that are within the Irvine Ranch Water District (IRWD) must adhere to IRWD Standards.

1. Water mains and appurtenant structures shall be installed to provide domestic water service and fire protection to all lots in a tract, all parcels of a parcel map or to any new development.
2. Curb and gutter shall be constructed prior to installation of the water system, unless full horizontal and vertical control survey staking is provided for construction of the water system. Such staking shall provide for the alignment, cuts, location of all services and meters, gate valves, fire hydrants and other appurtenances required by the City Engineer.
3. All domestic water systems shall conform with and shall be installed in accordance with the latest edition of the American Water Works Association (AWWA) Standards and City of Tustin Standard Plans and Design Standards as applicable.
4. All water mains shall be sized to provide fire flow per the latest Orange County Fire Authority (OCFA) requirements, standards and specifications.
5. Fire hydrants shall be installed on all water mains at intervals no greater than 500' in single family residential areas and no greater than 300' in industrial, commercial and high density residential areas as required by the OCFA.
6. Fire protection lines and fire hydrants will be required on-site as required by the OCFA. Onsite fire protection systems shall be connected to the public water system via a Double Check Detector Assembly as shown on standard drawing 1101.
7. Each fire hydrant shall have at least one (1) 2 ½" and one (1) 4" hose connection as required by the OCFA. The 4" connection shall be directed to the street. They shall be located a minimum distance of five (5) feet from a driveway apron or any vertical obstruction such as a street light.
8. Fire hydrants shall be wet barrel James-Jones or approved equal installed on a 6" riser or larger as required to meet the fire flow demand specified by the OCFA.
9. All hydrants shall be connected to the main with 6" or larger C900 PVC pipe (class 200 minimum) or Ductile Iron Pipe (DIP) equivalent to class 200 minimum as required by the OCFA. Each fire hydrant lead shall have a gate valve matched to the associated pipe size installed on the lead near the main.

10. All hydrants, exposed pipe, flanges and bolts shall be painted with two coats of school bus yellow permo-enamel.
11. All water mains shall be C900 PVC pipe (class 200 minimum) or Ductile Iron Pipe (DIP) class as required, and as required and approved by the City Engineer, and shall be installed in accordance with the latest edition of the AWWA Standards.
12. The minimum cover on all water mains shall be at least 36" below finished earth grade or finished pavement grade on local streets and at least 42" below finished pavement grade on arterial streets. Backfill shall be imported sand having a minimum Sand Equivalent (SE) of 30 and shall be compacted to a minimum 90% relative density and material above subgrade shall be compacted to a minimum 95% relative density. Compaction tests shall be performed by a City approved Lab utilizing California Test Method Nos. 216 & 231. One sack slurry may be required above the pipe zone.
13. Dead-end lines will not be permitted except in unusual cases where loop connections are not possible. Dead-end lines shall only be shown on improvement plans submitted for checking after each specific case has been discussed with the City Engineer and tentative approval has been received. A 2" minimum blow-off assembly will be required at the dead-end.
14. All valves, fittings, hydrants and appurtenant structures shall be thrust blocked with concrete to the satisfaction of the City Engineer and in accordance with the latest edition of the AWWA standards.
15. All gate valves shall be AWWA & Underwriters Laboratories Factory Mutual (ULFM) tested, resilient wedge, with 2" spare operating nuts. Gate valves shall be M&H or an approved equal. Each gate valve shall have a Brooks 4-TT valve box with an 8" schedule 40 PVC riser or approved equal.
16. All valves, hydrants and fittings shall be cement lined or epoxy lined, and shall be approved by the City Engineer prior to delivery on the job. All fittings shall be short pattern and wrapped in 8 mil polyethylene. All nuts and bolts shall be type 316 stainless steel (SS).
17. The location of each water service house connection shall be shown on the improvement plans.
18. House connections shall be 1" copper type "K" soft. Single residential service connections shall be a minimum of 1" diameter. Commercial, industrial or multi-family residential connections shall be sized as required or as directed by the City Engineer. Services and meters shall be sized per latest edition of Uniform Plumbing Code fixtures unit count schedule.
19. All domestic water mains located on private property shall be located in a minimum ten (10) foot wide easement dedicated to the City, and shall be located at least five (5) feet from any structure, tree or large shrub.

20. All water mains shall be pressure tested to a minimum 200 psi for four (4) hours, after compaction test has passed, in accordance with the procedures outlined in the latest edition of the AWWA Standards.
21. After the pressure test is successfully passed, all water mains shall be chlorinated (50 ppm) and flushed by the installer and shall pass a bacteria test conducted by the City. Residual chlorine shall be neutralized (<0.1ppm) prior to discharge to the public storm drain system.
22. All Ductile Iron Pipe (DIP) shall be bagged with 8 mil polyethylene.
23. All pipes and fittings shall conform to NSF International / American National Standards Institute (NSF/ANSI) Standard 61, Annex G.

LANDSCAPING

STD. PLAN SECTION NOS. 2000, 2100 & 2200

1. The developer shall pay a parkway tree planting fee as prescribed by the City. Said fee shall cover the cost of the City furnishing and planting the trees and maintaining them for one year. Alternatively, the City may direct the developer to furnish and install the parkway trees, at their expense, per City standards.
2. The fee per parkway tree shall be based on a minimum tree spacing of 50' on center in industrial, commercial and multiple family developments and at least one parkway tree per lot for single family residential developments.

STREET LIGHTING

1. All developments shall have a street lighting system installed on "marbleite" poles served by underground conduit. Said street lighting system shall be installed per these minimum design standards and the standards of the City of Tustin and the Southern California Edison Company, or as approved by the City Engineer.
2. The following lighting systems for the various classes of streets are to be used as minimum requirements for adequate street lighting. The City Engineer may, where deemed necessary, modify these requirements. These systems may be varied to fit local conditions to the extent that the minimum average lumens per square foot of street surface thus derived is not less than the amount attained using the following systems for each street classification:
 - a. Local Single Family Residential Streets, with development on one side of the street: 5,800 lumen high pressure sodium vapor lamps, with 22' mounting height on 6' arms spaced at 200 feet along one side of the street.

- b. Local Single Family and Multiple Family Residential Streets and Residential Collector Type Streets: 5,800 lumen high pressure sodium vapor lamps with 28' mounting height on 6' arms spaced 400 feet apart along both sides of the street. (The lights are to be staggered from side to side along the street, thus the spacing between lights is 200 feet.)
- c. Commercial and Industrial Local Streets: 9,500 lumen high pressure sodium vapor lamps with 30' mounting height on 8' arms spaced at 240' apart along both sides of the street. (The lights are to be staggered from side to side along the street, thus the spacing between lights is 120 feet.)
- d. Commercial and Industrial Collector Streets and Secondary Arterial Highways: 16,000 lumen high pressure sodium vapor lamps with 30' mounting height on 8' arms, spaced at 240' along both sides of the street. (The lights are to be staggered from side to side along the street, thus spacing between lights is 120 feet.)
- e. Major and Primary Arterial Highways shall receive special design consideration to provide a minimum average lumens per square foot of illuminated surface or average foot candles of 1.5 as defined in the latest edition of the "American National Standards Institute for Roadway Lighting" (Recommended Practice RP – 8, 2010 Edition) as adopted by the American National Standards Institute and the Illuminating Engineering Society of North America. Use the spacing exhibits of RP-8 for the applicable street widths.
- f. Street intersections shall receive special consideration to the extent that at least one light standard shall be placed at each street intersection. However, at intersections where crosswalks are likely to be established, at least two light standards shall be required and placed in such locations as to effectively illuminate the crosswalks.
- g. The following situations shall also receive special consideration to the extent that additional lighting will be required:

Railroad grade crossings, alleys, bridges, overpasses, viaducts, plazas or traffic circles, underpasses, tunnels, highway interchanges and other specially designated locations.
- h. Luminaires and lamps shall be approved by the City Engineer.

SURVEY MONUMENTATION

1. All street intersections, center lines, beginning of curves, end of curves, tract boundaries and all intersection points, where they fall within a street right-of-way shall be marked, with an approved type of survey marker manufactured for such purpose, after installation of the final pavement surface.

2. Such survey markers shall be installed to leaded and tagged drill holes placed in the curb or sidewalk. Such reference distances or ties shall be turned into the office of the City Engineer. Said ties shall be neatly drafted on 8½" x 11" sheets.
3. Installation, establishment and documentation of survey monuments shall conform to the requirements of the latest version of the County of Orange Monumentation Policy, as well as all applicable State, County and local requirements.

SANITARY SEWERS

The City requires that sanitary sewer design and construction conform to the current standards as applicable (the Orange County Sanitation District or the Irvine Ranch Water District).

AVOIDING PLAN REVIEW DELAYS

The City of Tustin has made expedited plan review and project delivery not the exception to the rule but a priority in our commitment to serve you better. However, each individual applicant is the most important part of that commitment.

Most people do not realize how much control they really have over the plan review process. The best way to stay in control of that process is to avoid the common pitfalls that lead to prolonged plan reviews and extended delays in processing. Here are some suggestions to help **you** avoid these pitfalls:

1. **Avoid incomplete or partial submittals.** This problem can arise when applicants are under pressure to meet competing deadlines. To avoid additional plan reviews, make sure the design submittal is complete. The initial screening at the City of Tustin may not identify certain missing items needed for a complete plan review. If the plan reviewer/processor discovers that significant items are missing, unless otherwise waived or directed by the City Engineer, checking and processing of the project may be interrupted and the submittal package returned to the applicant. Partial submittals (such as a map without accompanying plans) will not be reviewed until all materials are received.
2. **Make sure all plan check comments are addressed.** Make sure that you are clear on what the plan reviewer is requesting. When significant questions arise over the intent of the reviewer's comments, call the City plan reviewer and get clarification of the comments. Or, arrange for a conference with the plan reviewer to go over the submittal comments in detail.
3. **Avoid major changes in design.** When major changes in the design concept occur after the initial or first review, it can be a source of delay and extra review time for the reviewer. If major changes must be made, arrange to meet with City staff, especially the plan reviewer, to discuss the changes. Take the time to highlight the changes and go over them with the City plan reviewer when the plans

are resubmitted. This will avoid any conflicts between other design or mapping elements and can allow them to be caught early in the process. If major changes must be made, arrange to meet with City staff and the plan reviewer to avoid confusion and inconsistency later.

4. **Do not submit your plans too early.** Occasionally applicants will "jump the gun" by making submittals before receiving entitlement approvals by the legislative body (Planning Commission, for example). To avoid causing a delay in your processing, make sure that a copy of all the project's Resolutions of Approval, or "project conditions of approval", accompany the application submittals.
5. **Avoid inconsistent design references.** This refers to civil plans which reference other plans prepared by other disciplines (such as architects) for details. Many times the details referenced on other plans do not match the design or existing conditions, City standards or specifications, or the dimensions and stationing may not match up. Avoid references to other plans when possible and show the needed details on the construction plan set.
6. **Adhere to City formats and guidelines.** There are published standards and guidelines for the preparation and documentation of improvement plans. Make good use of them in your plan set. When your design is not per standard, provide a special detail that modifies or refines the published standard to fit the design condition.

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SECTION 1000

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1006	DELETED - Tapping Sleeve and Gate Valve for Steel Pipe
1007	2" Blow-off Assembly
1008	2" Temporary Blow-off
1009	4" Blow-off Assembly
1010	4" Temporary Blow-off
1011	Water Main Design Criteria (4 Sheets)
1012	Water Line Service Bore Pit
1013	Valve, Box and Riser
1014	Ductile Iron Offset (Over Obstructions)
1015	Ductile Iron Offset (Under Obstructions)

AIR VACS – BACKFLOW DEVICES

SECTION 1100

STANDARD NO.	DESCRIPTION
1101	Double Check Detector Assembly (2 Sheets)
1102	DELETED - Standard Detector Check Detail for Fire Service
1103	1" Air and Vacuum Valve Assembly
1104	2" Air and Vacuum Valve Assembly
1105	DELETED - 1" Air and Vacuum Valve Enclosure
1106	DELETED - 2" Air and Vacuum Valve Enclosure
1107	DELETED - Air Gap Separation
1108	DELETED - Double Check Valve or Reduced Pressure Principal Assemblies
1109	DELETED - Reduced Pressure Principal Assemblies
1110	DELETED - Pressure Type Vacuum Breakers

THRUST BLOCKS – GUARD POSTS

SECTION 1200

STANDARD NO.	DESCRIPTION
1201	Typical Thrust / Anchor Blocks
1202	Thrust / Anchor Block Details for 4" - 12" D.I. Fittings
1203	Anchor Block Details for Vertical Bends
1204	Anchor Block Details for Valves
1205	Guard Post Details for Fire Hydrants

STANDARD PLAN INDEX

LANDSCAPING IRRIGATION

SECTIONS 2000, 2100 & 2200 SECTION 2000

STANDARD NO.	DESCRIPTION
2001	Communication Cable Conduit and Pull Box
2002	Controller / Cluster Controller Unit Pad Layout Diagram
2003	Wire Pull Box - Future Moisture Sensor
2004	Ball Valve - with Thrust Block
2005	Flow Sensor Assembly
2006	Master Control Valve
2007	Remote Control Valve
2008	Backflow Assembly with "Y" Strainer
2009	Backflow Assembly Cover
2010	Irrigation Line Trenching Detail
2011	Mainline / Equipment Location
2012	Rotary Pop-up Head
2013	Pop-up Shrub Head
2014	Pop-up Turf Head
2015	Quick Coupler
2016	Fertilizer Injection System

IRRIGATION CONTROLLERS

SECTION 2100

STANDARD NO.	DESCRIPTION
2101	Controller / Cluster Controller Unit Pad on Grade
2102	Irrigation Controller and Metered Assembly
2103	DELETED - Controller / Cluster Controller Unit Pad Layout Diagram
2104	DELETED - Controller Enclosure Equipment Layout Diagram
2105	DELETED - Irrigation Service / P.O.C. Diagram
2106	DELETED - Cluster Control Unit and Enclosure
2107	Controller Enclosure
2108	DELETED - Maxicom System Schematic

STANDARD PLAN INDEX

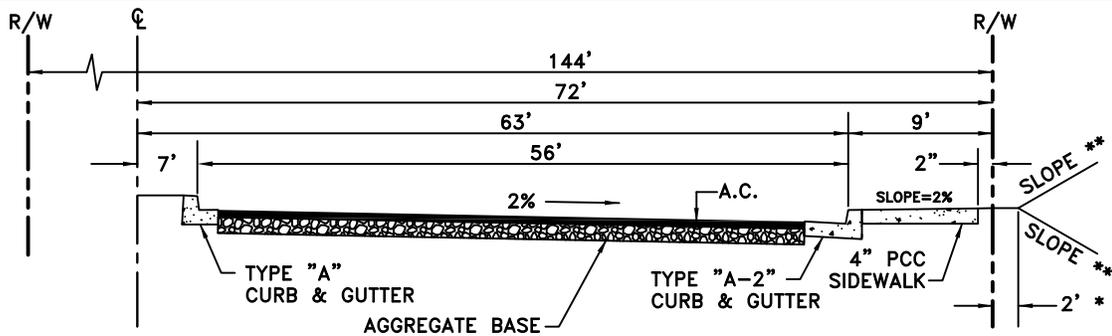
PARKWAY TREES

SECTION 2200

STANDARD NO.	DESCRIPTION
2201	Standard Specimen Tree, 36" Box and Larger
2202	Shrub Planting on Slope
2203	Shrub and Vine Planting
2204	DELETED - Groundcover Location and Spacing
2205	Tree Rootball Aeration
2206	DELETED - Tree Planting with Root Barrier
2207	Protective Staking
2208	Standard Tree Planting in Parkways, 24" Box and Smaller
2209	Standard Tree Planting on Slopes, 24" Box and Smaller
2210	DELETED - Tree Root Barrier

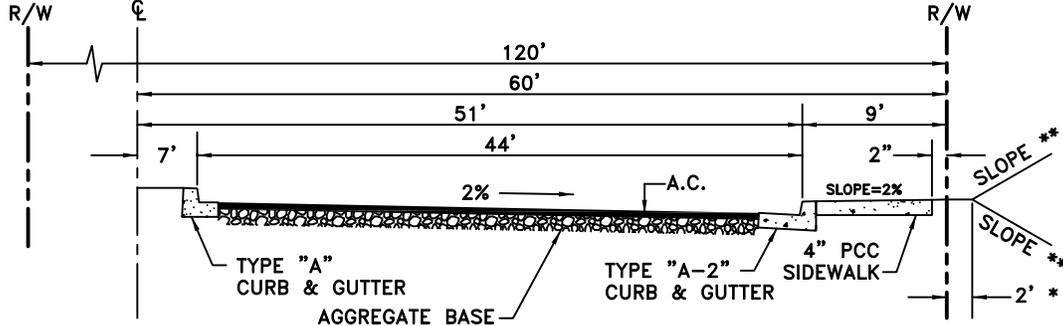
SECTION 100

STREET IMPROVEMENTS



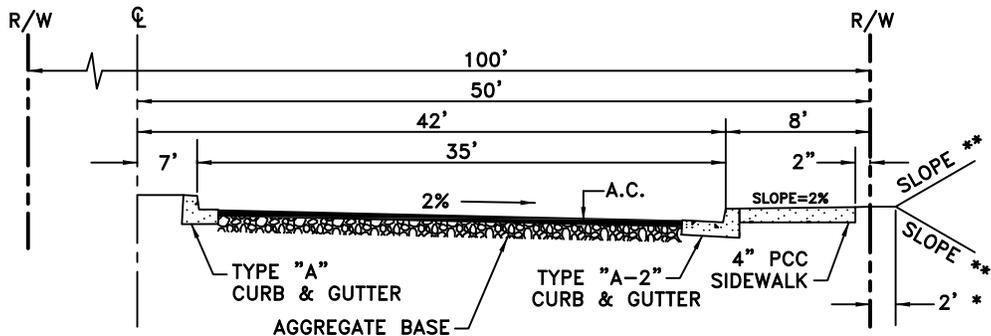
MAJOR ARTERIAL HIGHWAY (144' R/W)

* DISTANCE SHOWN IS MINIMUM FROM RIGHT-OF-WAY TO HINGE POINT.
 ** MAX SLOPE FOR GRASS 5:1, MAX SLOPE FOR LANDSCAPE 3:1.

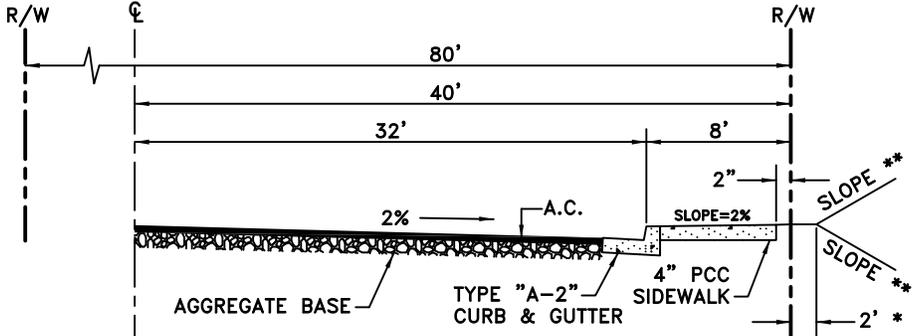


MAJOR ARTERIAL HIGHWAY (120' R/W)

* DISTANCE SHOWN IS MINIMUM FROM RIGHT-OF-WAY TO HINGE POINT.
 ** MAX SLOPE FOR GRASS 5:1, MAX SLOPE FOR LANDSCAPE 3:1.



PRIMARY ARTERIAL HIGHWAY (100' R/W)

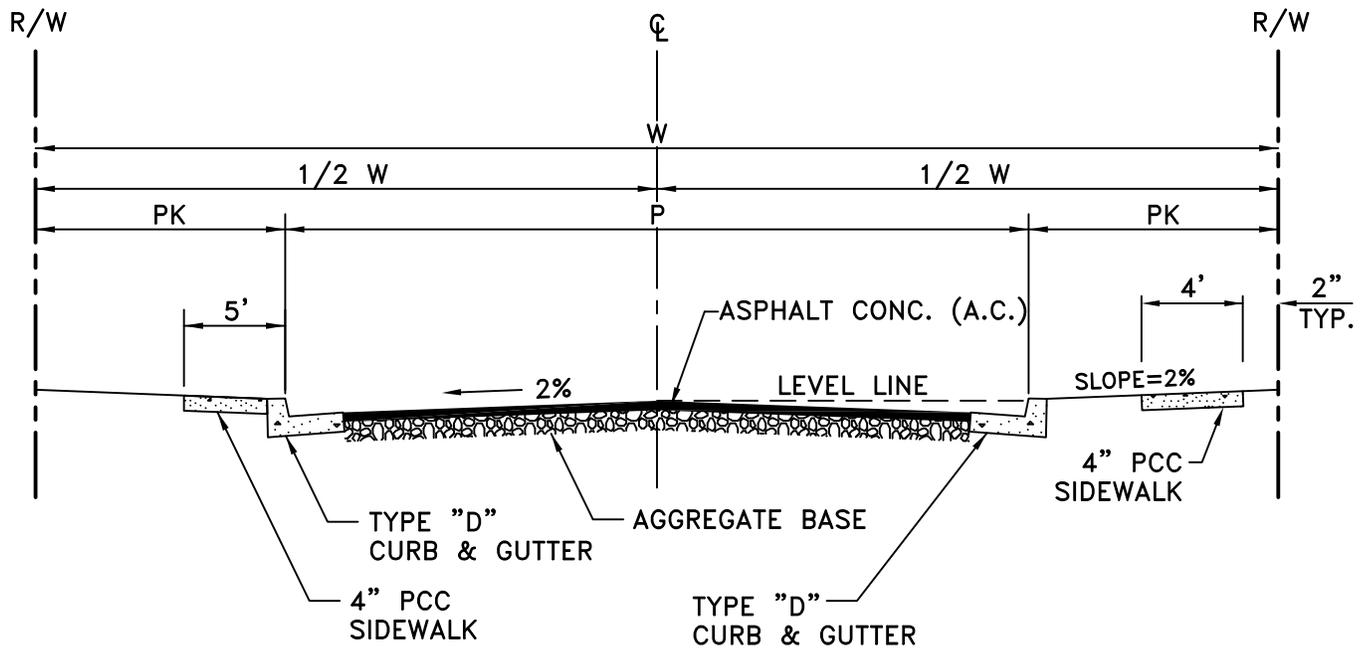


SECONDARY ARTERIAL HIGHWAY (80' R/W)

- NOTES:**
1. SECTIONS ARE TO BE SYMMETRICAL ABOUT \mathcal{C} .
 2. THICKNESS OF STRUCTURAL PAVEMENT SECTIONS TO BE APPROVED BY THE CITY ENGINEER.
 3. FOR CURB AND GUTTER DETAILS REFER TO CITY STD. 201.
 4. FOR SIDEWALK DETAILS REFER TO CITY STDS. 202, 203, AND 204.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			ARTERIAL HIGHWAY SECTIONS 2012 EDITION	101



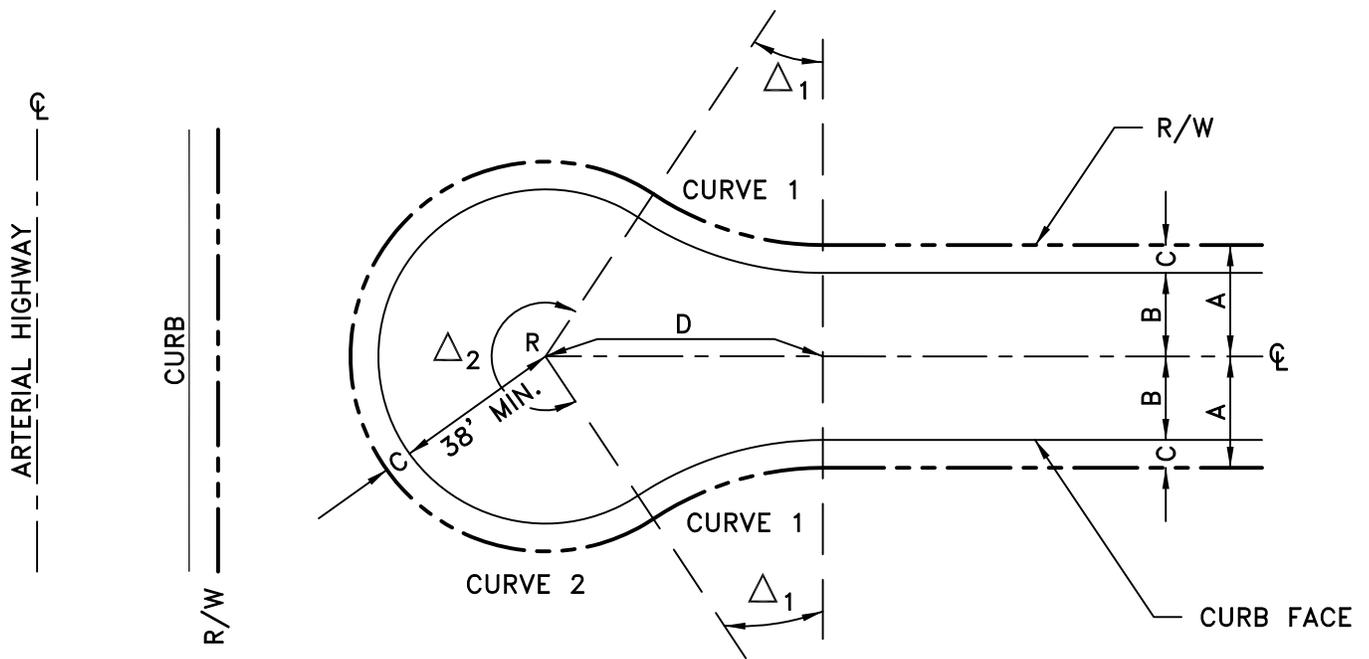
W	P	PK	LEGEND
66'	40'	13'	W = WIDTH OF STREET IN FEET
60'	40'	10'	P = WIDTH OF PAVEMENT IN FEET
56'	36'	10'	PK = WIDTH OF PARKWAY IN FEET

NOTES:

1. THICKNESS OF STRUCTURAL PAVEMENT TO BE APPROVED BY THE CITY ENGINEER.
2. PCC SHALL BE CLASS 560-C-3250.
3. FOR CURB AND GUTTER DETAILS REFER TO CITY STD. 201.
4. FOR SIDEWALK DETAILS REFER TO CITY STDS. 202, 203, AND 204.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	LOCAL STREET SECTION	
				2012 EDITION



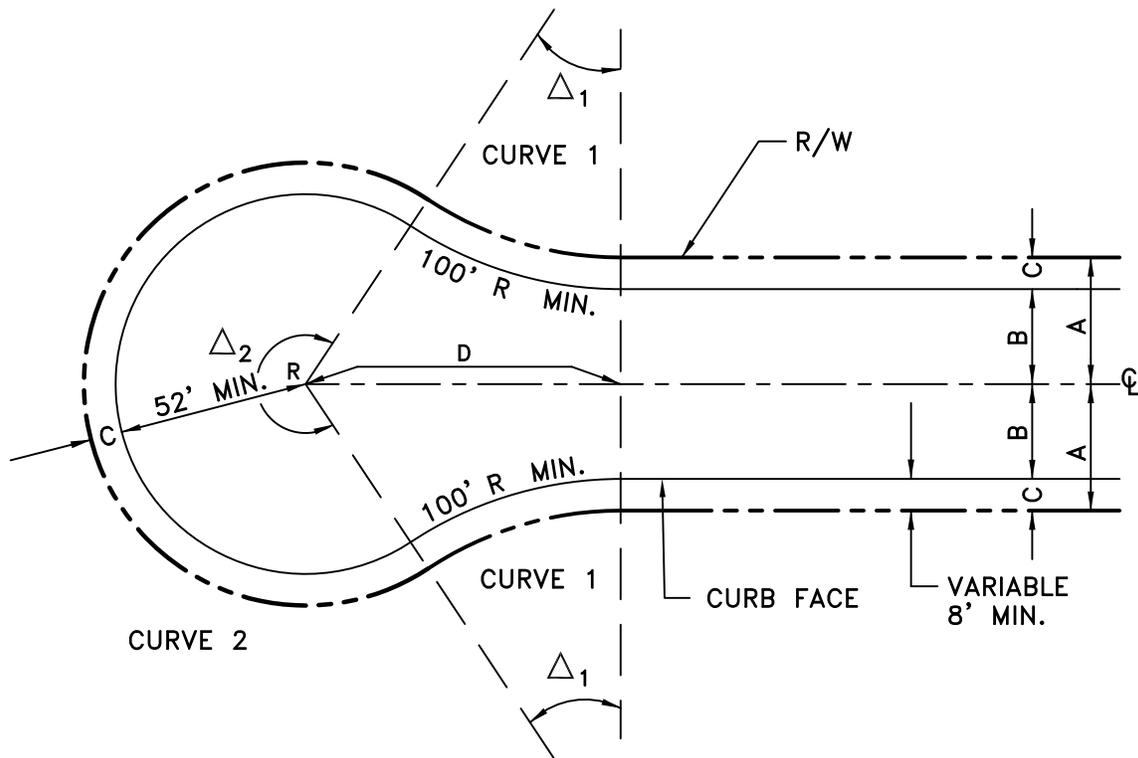
CURVE 1											
R/W	A	B	C	D	Δ_1	CURB			R/W		
						R	L	T	R	L	T
56'	28'	18'	10'	71.55'	31°13'56"	100'	54.51'	27.95'	90'	49.06'	25.16'
60'	30'	20'	10'	68.15'	29°35'31"	100'	51.65'	26.41'	90'	46.48'	23.77'
CURVE 2											
R/W	A	B	C	D	Δ_2	CURB		R/W			
						R	L	R	L		
56'	28'	18'	10'	71.55'	242°27'52"	38'	160.81'	48'	203.13'		
60'	30'	20'	10'	68.15'	239°11'02"	38'	158.63'	48'	200.38'		

NOTES:

1. MINIMUM STREET FLOW LINE GRADE SHALL BE 0.4%, EXCEPT FOR REVERSE GRADE VERTICAL CURVES.
2. POINT "R" SHALL BE 0.30' MIN. ABOVE THE HIGHEST TOP OF CURB ELEVATION WITHIN CUL-DE-SAC.
3. IN THE CASE WHERE A CUL-DE-SAC BACKS INTO AN ARTERIAL HIGHWAY AND DRAINS TOWARD IT, A COVERED DRAIN SHALL BE PROVIDED THROUGH A DRAINAGE EASEMENT A MINIMUM OF 2' WIDER THAN THE DRAIN OR 10' WHICHEVER IS GREATER. PLANS SHALL INCLUDE ALL INFORMATION PERTINENT TO THE DRAIN INCLUDING EXACT LOCATION, SIZE, REINFORCEMENT, EASEMENT, FLOW LINES, CURB FACE OPENINGS, LOCAL DEPRESSIONS, CAPACITIES, ETC.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS		STD. NO.
DATE	DESCRIPTION	APP'D	RESIDENTIAL CUL-DE-SAC		
			2012 EDITION		103



CURVE 1											
R/W	A	B	C	D	Δ_1	CURB			R/W		
						R	L	T	R	L	T
60'	30'	22'	8'	64.50'	27°51'51"	100'	48.63'	24.81'	92'	44.74'	22.82'
80'	40'	32'	8'	40.25'	16°57'27"	100'	29.60'	14.91'	92'	27.23'	13.71'
CURVE 2											
R/W	A	B	C	D	Δ_2	CURB		R/W			
						R	L	R	L		
60'	30'	22'	8'	64.50'	235°43'42"	38'	156.34'		46'	189.25'	
80'	40'	32'	8'	40.25'	213°54'53"	38'	141.87'		46'	171.74'	

NOTES:

1. POINT "R" SHALL BE 0.30' MIN. ABOVE THE HIGHEST TOP OF CURB ELEVATION WITHIN CUL-DE-SAC.
2. IN THE CASE WHERE A CUL-DE-SAC BACKS INTO AN ARTERIAL HIGHWAY AND DRAINS TOWARD IT, A COVERED DRAIN SHALL BE PROVIDED THROUGH A DRAINAGE EASEMENT A MINIMUM OF 2' WIDER THAN THE DRAIN OR 10' WHICHEVER IS GREATER. PLANS SHALL INCLUDE ALL INFORMATION PERTINENT TO THE DRAIN INCLUDING EXACT LOCATION, SIZE, REINFORCEMENT, EASEMENT, FLOW LINES, CURB-FACE OPENINGS, LOCAL DEPRESSIONS, CAPACITIES, ETC.

NO SCALE

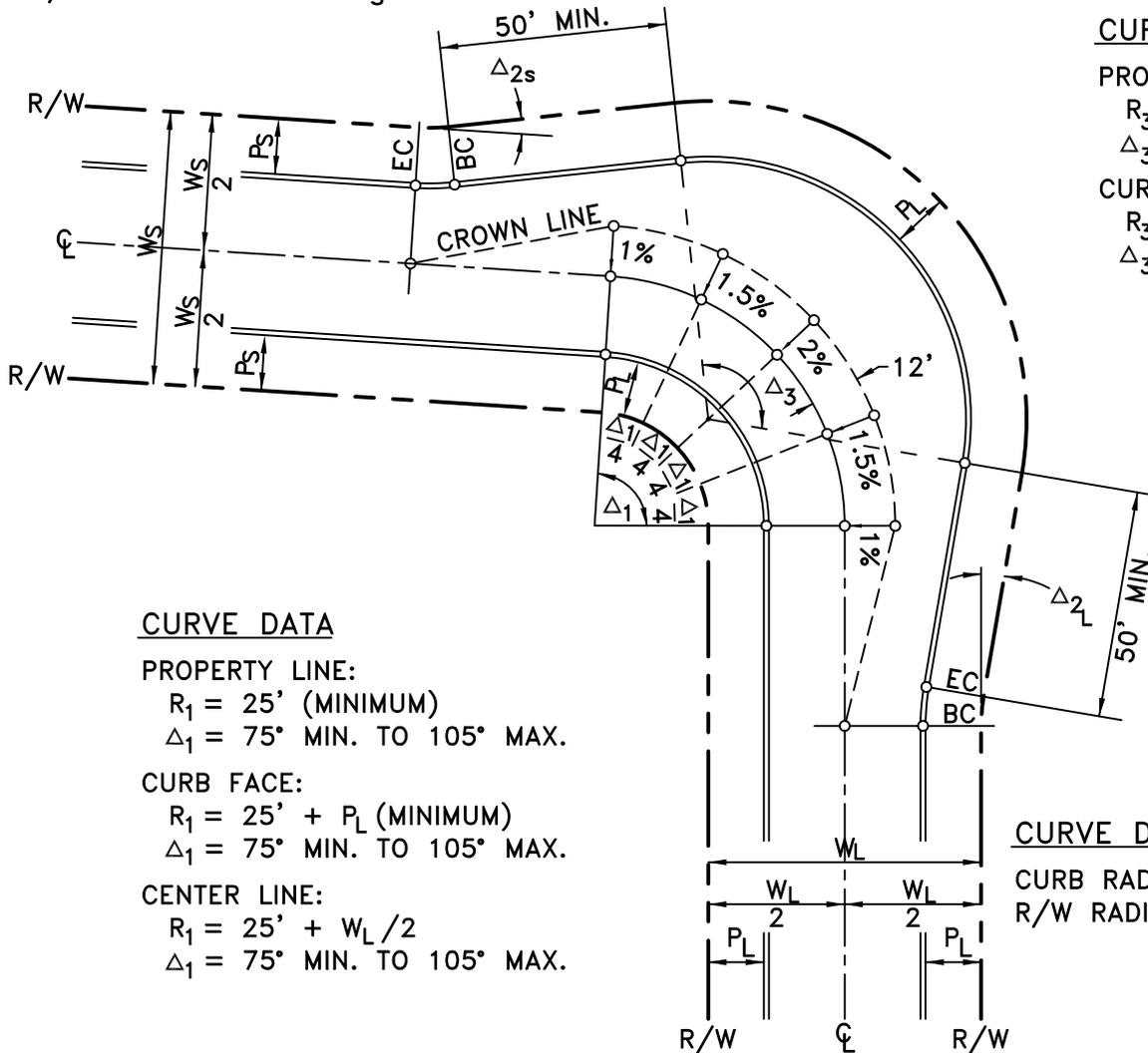
REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS		STD. NO.
DATE	DESCRIPTION	APP'D	STANDARD COMMERCIAL OR INDUSTRIAL CUL-DE-SAC		
			2012 EDITION		104

CURVE DATA

CURB RADIUS = 50'
 R/W RADIUS = 50' - P_S

CURVE DATA

PROPERTY LINE:
 $R_3 = W_L + 10'$
 $\Delta_3 = \Delta_1 + \Delta_{2S} + \Delta_{2L}$
 CURB FACE:
 $R_3 = W_L + 10' - P_L$
 $\Delta_3 = \Delta_1 + \Delta_{2S} + \Delta_{2L}$



CURVE DATA

PROPERTY LINE:
 $R_1 = 25'$ (MINIMUM)
 $\Delta_1 = 75^\circ$ MIN. TO 105° MAX.
 CURB FACE:
 $R_1 = 25' + P_L$ (MINIMUM)
 $\Delta_1 = 75^\circ$ MIN. TO 105° MAX.
 CENTER LINE:
 $R_1 = 25' + W_L/2$
 $\Delta_1 = 75^\circ$ MIN. TO 105° MAX.

CURVE DATA

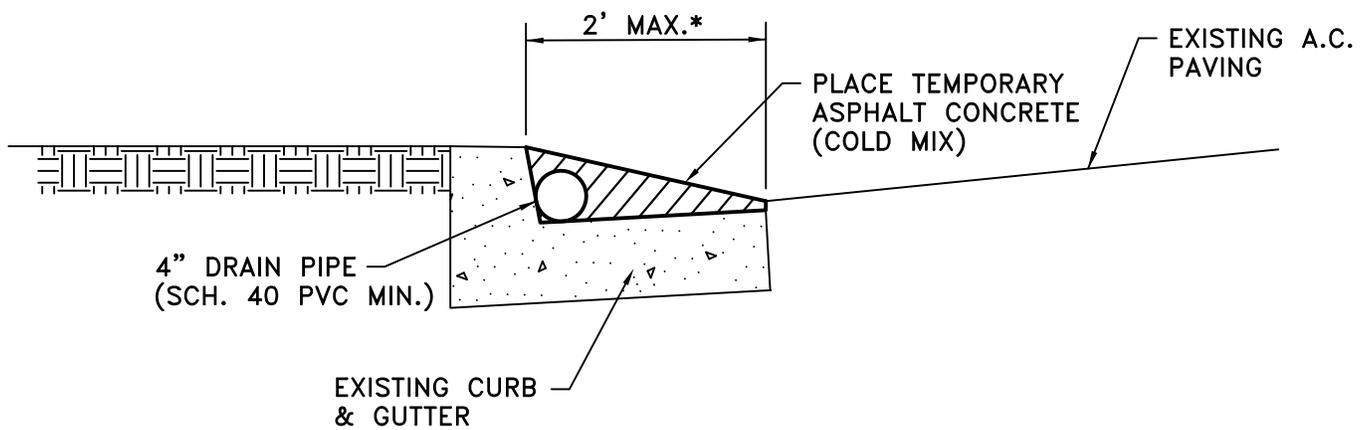
CURB RADIUS = 50'
 R/W RADIUS = 50' - P_L

NOTES:

1. USE NORMAL SECTION FROM INNER CURB TO CENTER LINE.
2. FROM CROWN LINE TO OUTER CURB, THE MAXIMUM SLOPE IS 3%.
3. SUBSCRIPTS "S" AND "L" DENOTE SMALLER AND LARGER STREETS, RESPECTIVELY.
4. SUPERELEVATION PERCENTAGES SHOWN ARE STRAIGHT FROM \mathcal{C} TO CROWN LINE.
5. ELEVATIONS ARE REQUIRED WHERE CIRCLED \circ .
6. WHEN STREETS HAVE TILT-TYPE SECTION, THE CROWN LINE WILL NOT NECESSARILY TERMINATE ON \mathcal{C} AT ANGLE POINT OF CURB.
7. MINIMUM STREET FLOW LINE GRADE SHALL BE 0.4%, EXCEPT FOR REVERSE GRADE VERTICAL CURVES.
8. ALL P_S AND P_L DIMENSIONS SHALL BE FROM R/W TO CURB FACE.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			STREET KNUCKLE	105



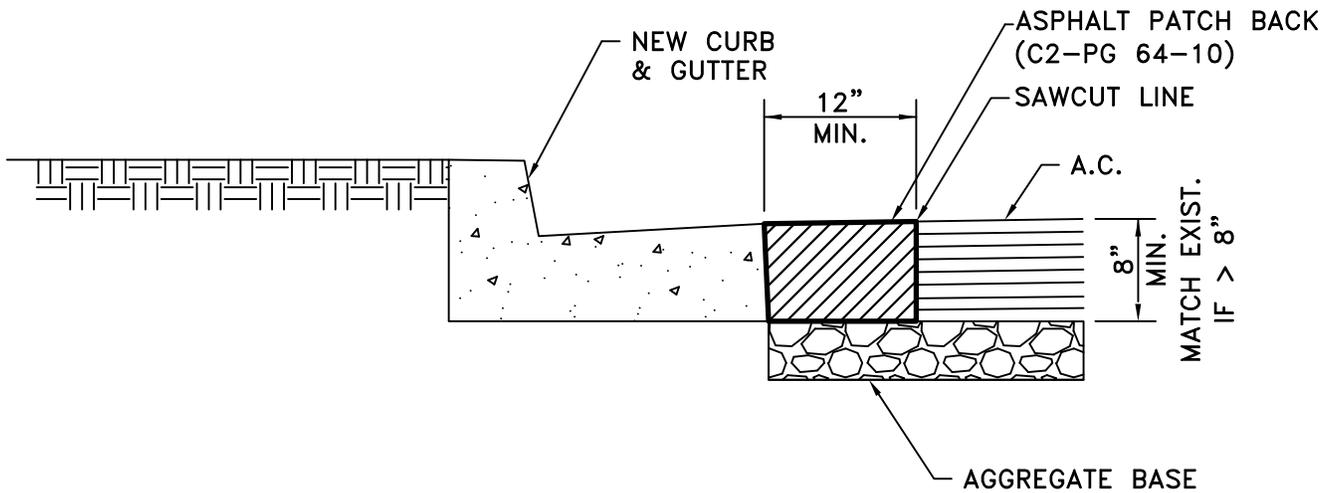
CROSS SECTION

NOTES:

*1. RAMP SHALL NOT EXTEND BEYOND LIP OF GUTTER.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	TEMPORARY ACCESS RAMP	
				2012 EDITION



CROSS SECTION

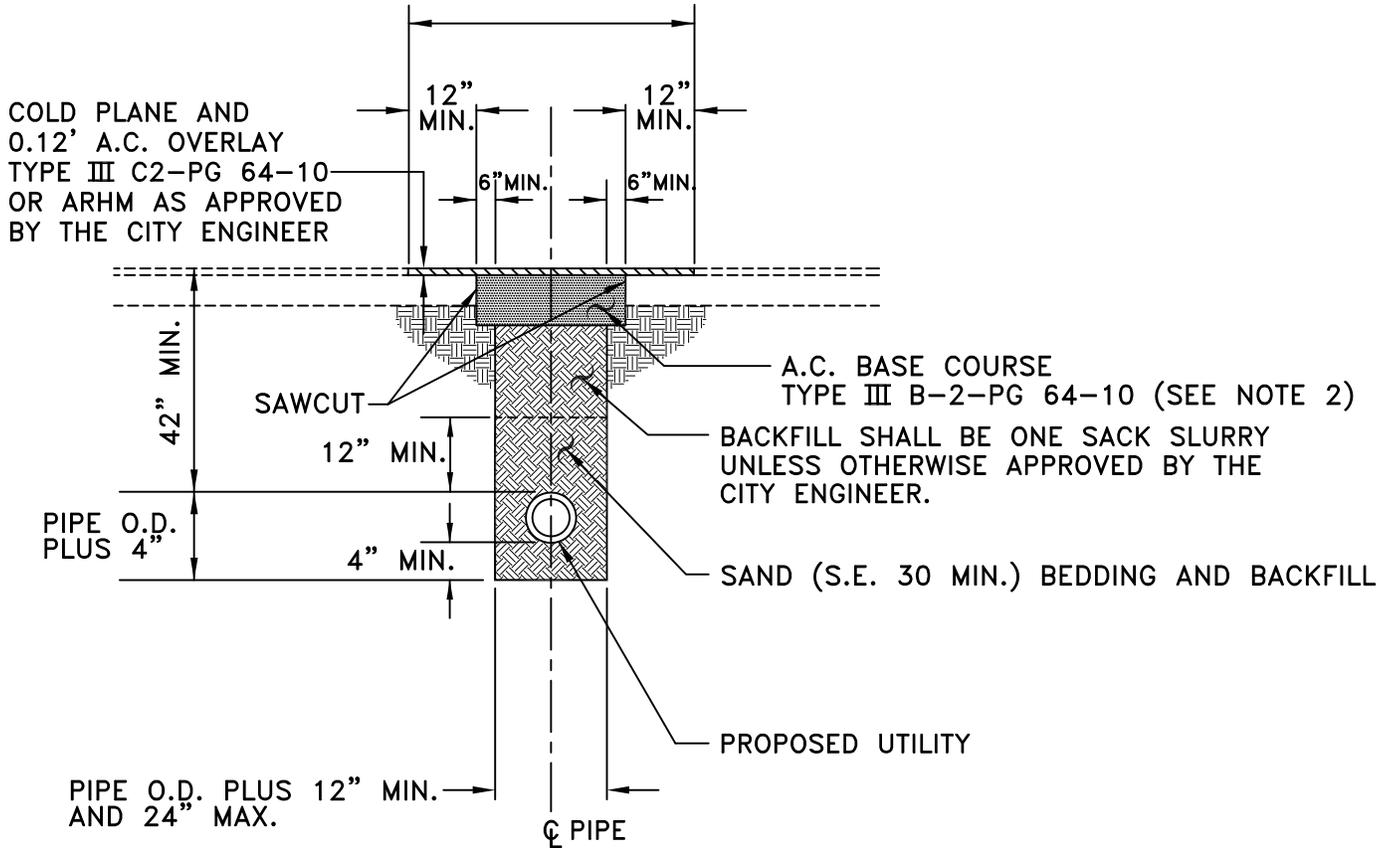
NOTE:

ANY DISTURBED MATERIAL IN THE CURB SLOT ASPHALT PATCH AREA SHALL BE REPLACED WITH DEEP LIFT (OR FULL DEPTH) A.C. WITH 4" MAXIMUM LIFT.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO. 107
DATE	DESCRIPTION	APP'D	CURB SLOT ASPHALT PATCH BACK	
			2012 EDITION	

10' MIN. ON LOCAL X-INGS
 20' MIN. ON ARTERIAL X-INGS
 (SEE NOTES 3 & 4)



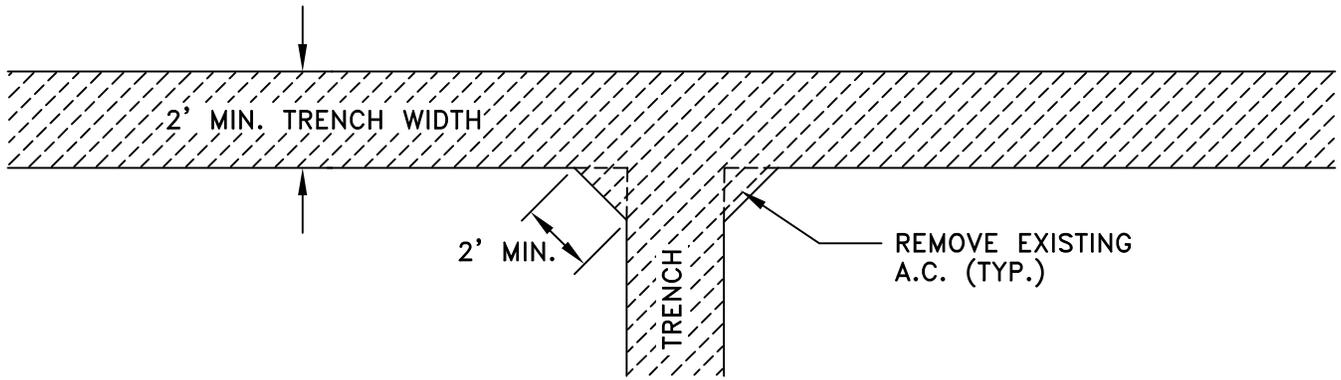
CROSS SECTION

NOTES:

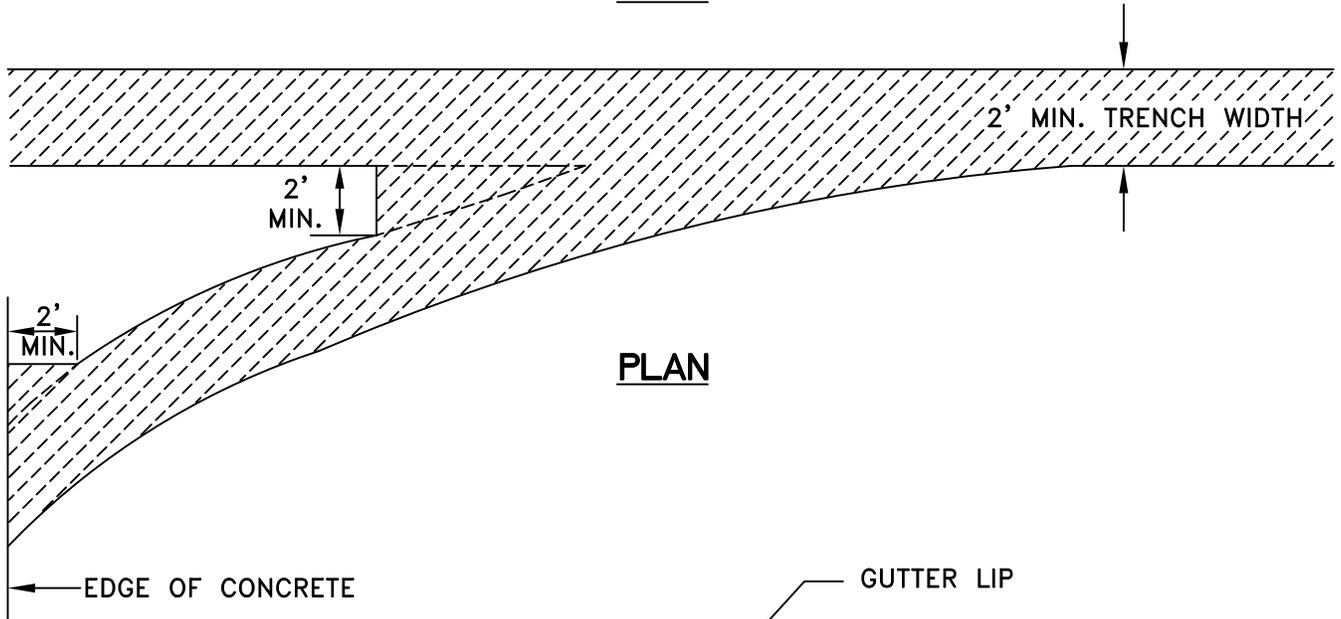
1. SHORING FOR TRENCHES DEEPER THAN 5 FEET SHALL CONFORM TO THE LATEST OSHA STANDARDS.
2. PAVEMENT REPLACEMENT SECTION TO BE NOTED ON PLAN, PERMIT, OR CITY STREET INDEX FOR DEEP LIFT PAVEMENT REPAIR (8" MIN. A.C.). BASE COURSE SHALL BE PLACED FLUSH ONE (1) WEEK MIN. PRIOR TO COLD PLANE AND OVERLAY.
3. FOR TRENCH REPAIR PAVEMENT DETAILS REFER TO CITY STD. 109.
4. FOR TRENCH REPAIR COLD PLANING DETAILS REFER TO CITY STD. 110.
5. ALL SAND SHALL BE IMPORTED AND HAVE A MINIMUM SAND EQUIVALENT (S.E.) OF 30 AND COMPACTED TO A RELATIVE DENSITY OF NOT LESS THAN 90%.
6. ONE SACK SLURRY SHALL BE PLACED UNDER CURB AND GUTTER AND CROSS GUTTERS WHEN TUNNELING.
7. THIS DETAIL IS APPLICABLE TO BORING/JACKING OPERATIONS AS WELL.

NO SCALE

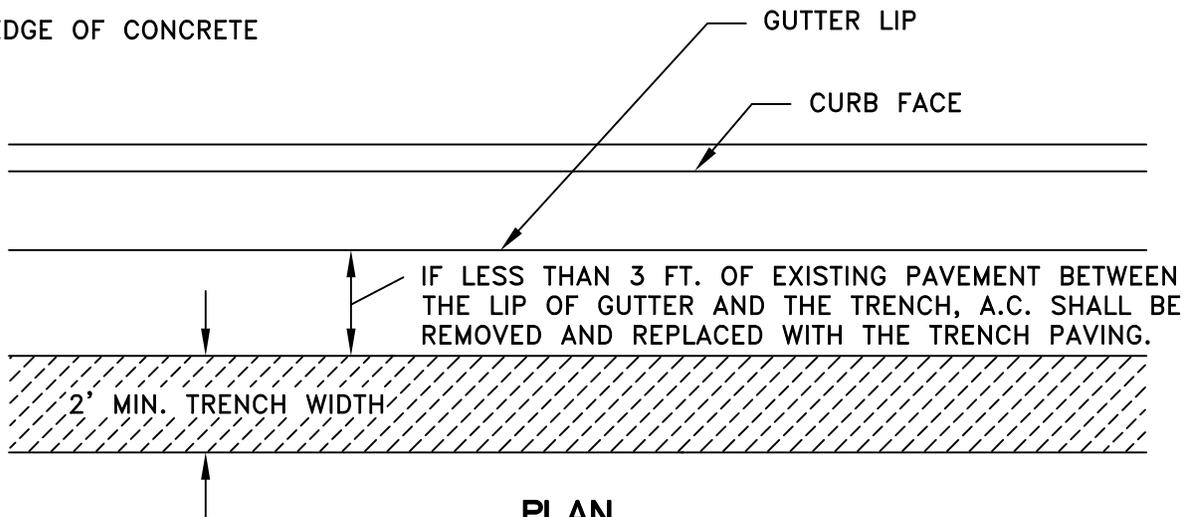
REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			TRENCH REPAIR AND BACKFILL	108



PLAN



PLAN



PLAN

NOTE:

FOR TRENCH REPAIR AND BACKFILL REQUIREMENTS REFER TO CITY STD. 108.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			TRENCH REPAIR PAVEMENT DETAILS	109
			2012 EDITION	

☉ OR EDGE OF
MEDIAN CURB

COLD PLANE 0.12 FT. DEEP FROM EDGE OF MEDIAN CURB OR STREET CENTER LINE TO CENTER OF NO. 1 LANE LINE AND REPAVE WITH C2-PG 64-10 A.C. IF TRENCH FALLS WITHIN THIS AREA.



CROSS SECTION

☉

COLD PLANE 0.12 FT. DEEP FULL WIDTH OF TRAVEL LANE 12 FT. MINIMUM. REPAVE WITH C2-PG 64-10 A.C. IF TRENCH FALLS WITHIN THIS AREA.



CROSS SECTION

☉

COLD PLANE 0.12 FT. DEEP FROM LIP OF GUTTER TO THE CENTER OF THE BIKE LANE STRIPE OR AN APPROPRIATE DISTANCE FROM CURB FACE TO COVER AN ENTIRE LANE WIDTH OR AS DIRECTED BY THE CITY ENGINEER. REPAVE WITH C2-PG 64-10 A.C. IF TRENCH FALLS WITHIN THIS AREA.



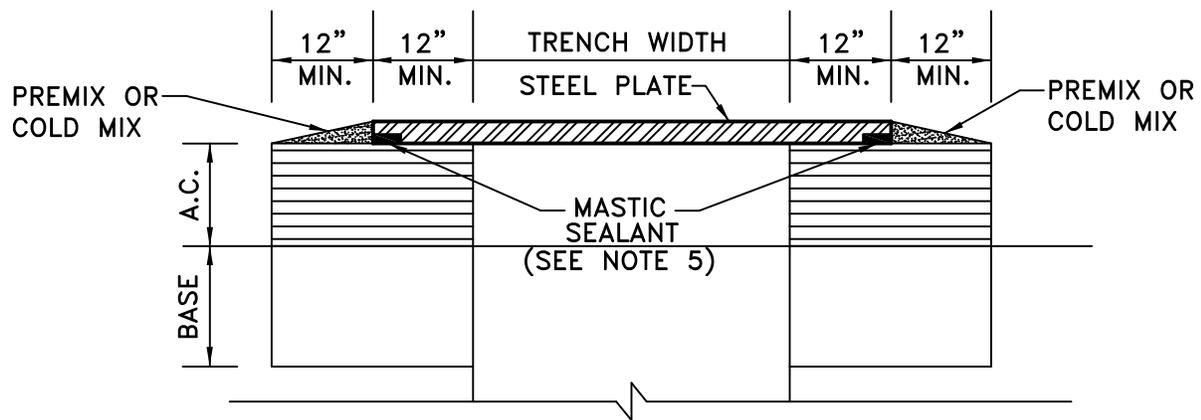
CROSS SECTION

NOTES:

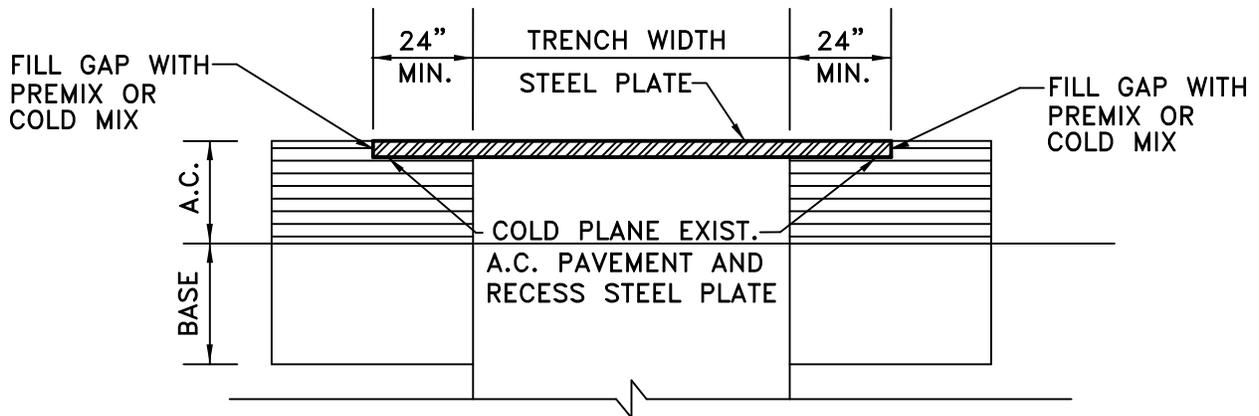
1. ON ARTERIAL HIGHWAYS WITH THREE LANES IN EACH DIRECTION, THE LANE THAT THE TRENCH IS LOCATED IN SHALL BE COLD PLANED 0.12' DEEP FOR ONE (1) FULL LANE WIDTH FROM CENTER OF LANE LINE TO CENTER OF LANE LINE OR LIP OF GUTTER AND REPAVED WITH C2-PG 64-10 A.C.
2. FOR TRENCH REPAIR AND BACKFILL DETAILS REFER TO CITY STD. 108.
3. IF PAVEMENT IS DAMAGED IN ADJACENT LANES OR IF THE CONDITIONS ABOVE DO NOT COVER THE EXISTING CONDITIONS, THE COLD PLANE LIMITS WILL BE DETERMINED IN THE FIELD BY THE CITY ENGINEER.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	TRENCH REPAIR COLD PLANING DETAILS	
				110
2012 EDITION				



LOCAL STREET CROSS SECTION



ARTERIAL STREET CROSS SECTION

NOTES:

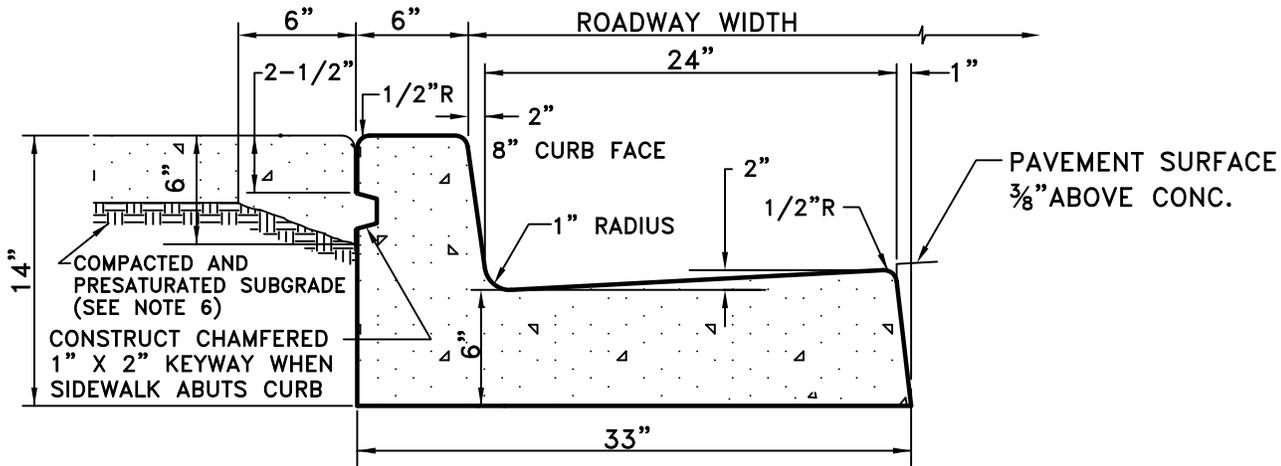
1. TRENCH WALLS AND ADJACENT SOILS SHALL BE SUFFICIENTLY STABLE FOR THE USE OF STEEL PLATE TRENCH BRIDGE. TRENCH SHORING SHALL BE USED WHEN REQUIRED.
2. STEEL PLATE SURFACE EXPOSED TO THE TRAVEL WAY SHALL HAVE A NON-SKID SURFACE.
3. STEEL PLATES SHALL BE TACK WELDED TOGETHER.
4. STEEL PLATES SHALL BE PINNED IN ALL CORNERS. (SEE NOTE 5)
5. MASTIC FLEXIBLE SEALANT (RAM-NEK FLEXIBLE PLASTIC GASKET OR EQUAL) SHALL BE USED AROUND EDGE OF PLATE AND CONTACT WITH EXISTING PAVEMENT TO KEEP PLATES FROM ROCKING.
6. ADVANCED "STEEL PLATES AHEAD" WARNING SIGN(S) SHALL BE PLACED PER THE TRAFFIC CONTROL PLAN OR AS DIRECTED BY THE CITY ENGINEER.

NO SCALE

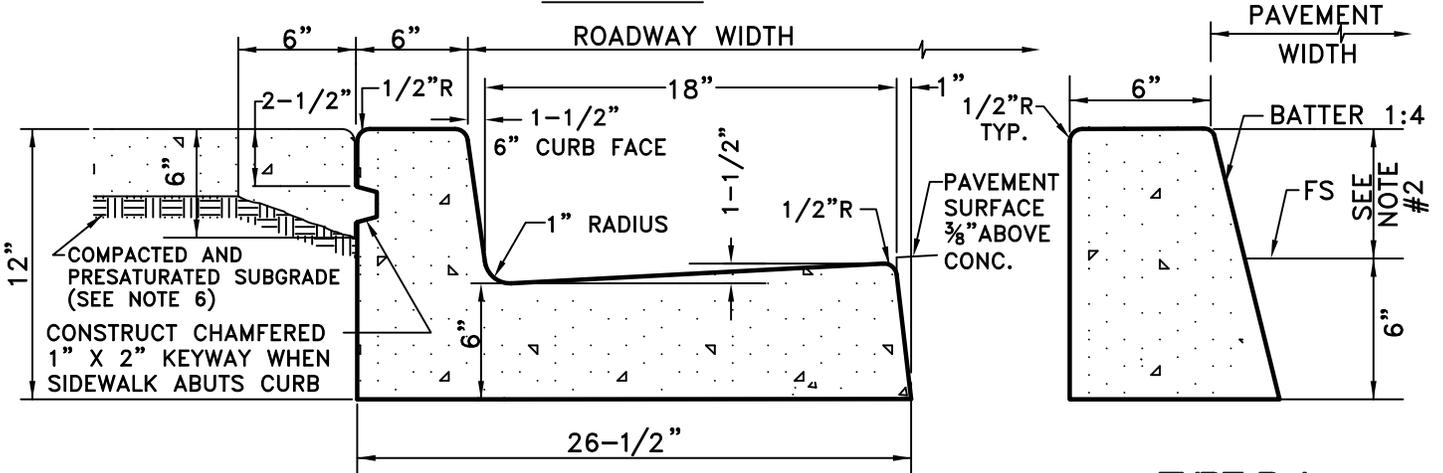
REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS		STD. NO. 111
DATE	DESCRIPTION	APP'D	STEEL PLATE TRENCH BRIDGING		
			2012 EDITION		

SECTION 200

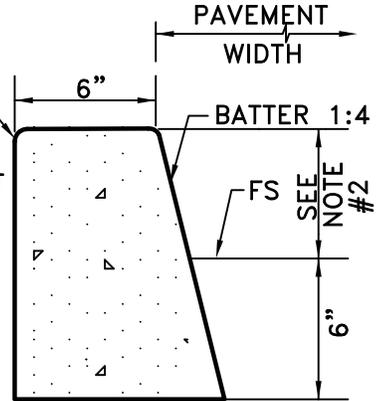
STREET IMPROVEMENT DETAILS



TYPE A-2

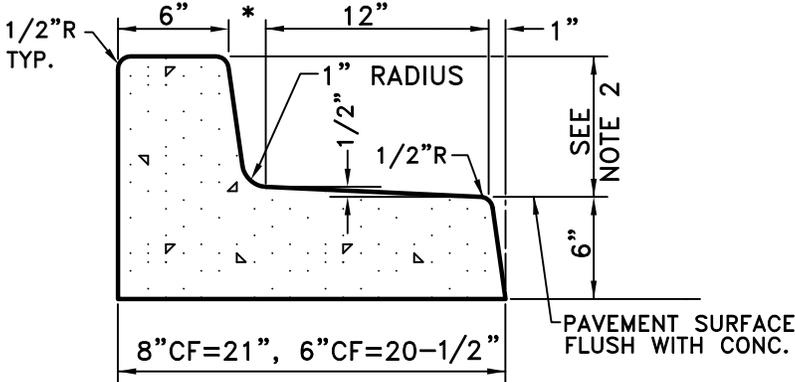


TYPE D

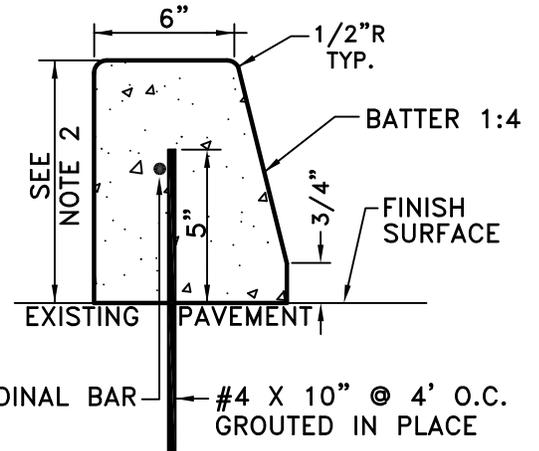


TYPE B-1

* 8"CF=2", 6"CF=1-1/2"



TYPE A



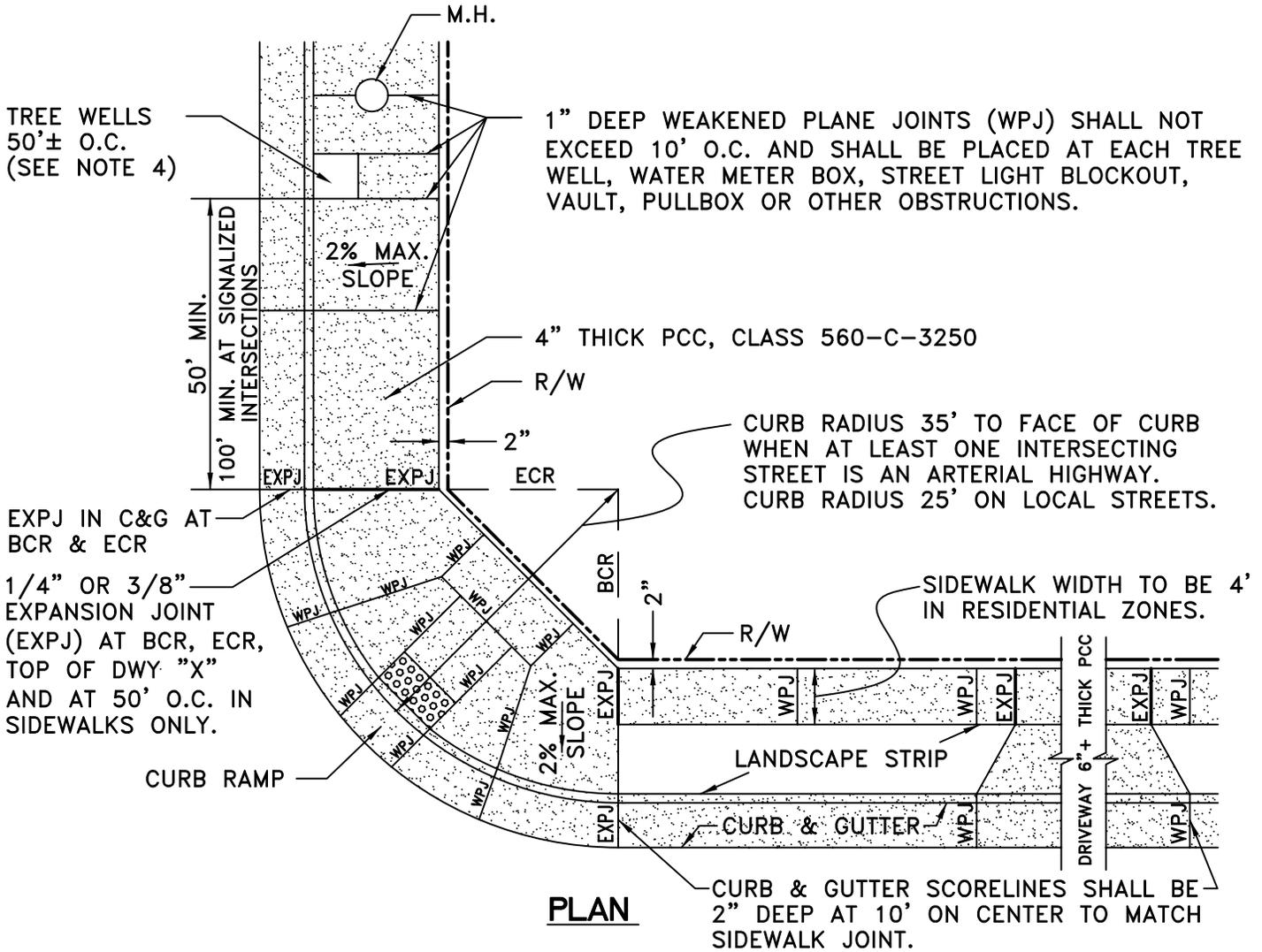
TYPE B-3

NOTES:

1. PCC SHALL BE CLASS 560-C-3250.
2. 6" OR 8" CURB FACE AS DIRECTED BY THE CITY ENGINEER.
3. PLACE 2" DEEP WEAKENED PLANE JOINT (WPJ) 10' O.C. AND AT TOP OF 'X', BCR & ECR.
4. 3-#4 BARS SHALL BE PLACED LONGITUDINALLY IN C&G AT COMMERCIAL DRIVEWAY & BUS STOPS.
5. WHEN KEYWAY DOES NOT EXIST, USE EPOXY TO INSTALL #4 DOWELS - 12" LONG @ 18" O.C. 4" MIN. INTO BACK OF CURB, 3" BELOW TOP OF CURB.
6. PRIOR TO PLACING CONCRETE, SIDEWALK SUBGRADE SHALL BE PRESATURATED TO 125% OF OPTIMUM MOISTURE CONTENT TO A DEPTH OF 18".

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			CONCRETE CURB AND GUTTER 2012 EDITION	201

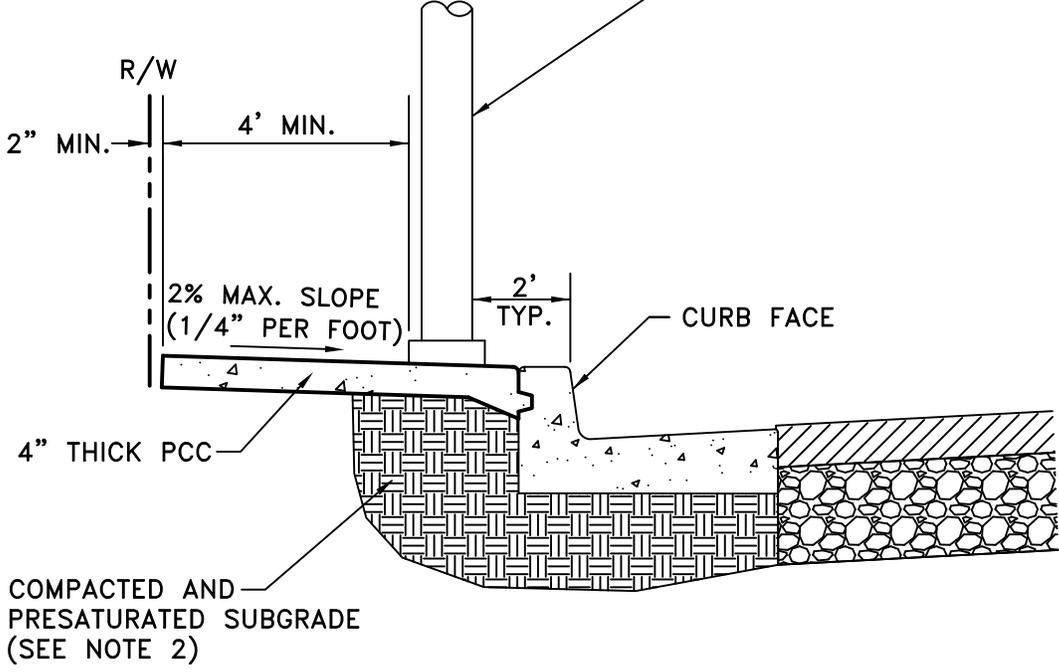
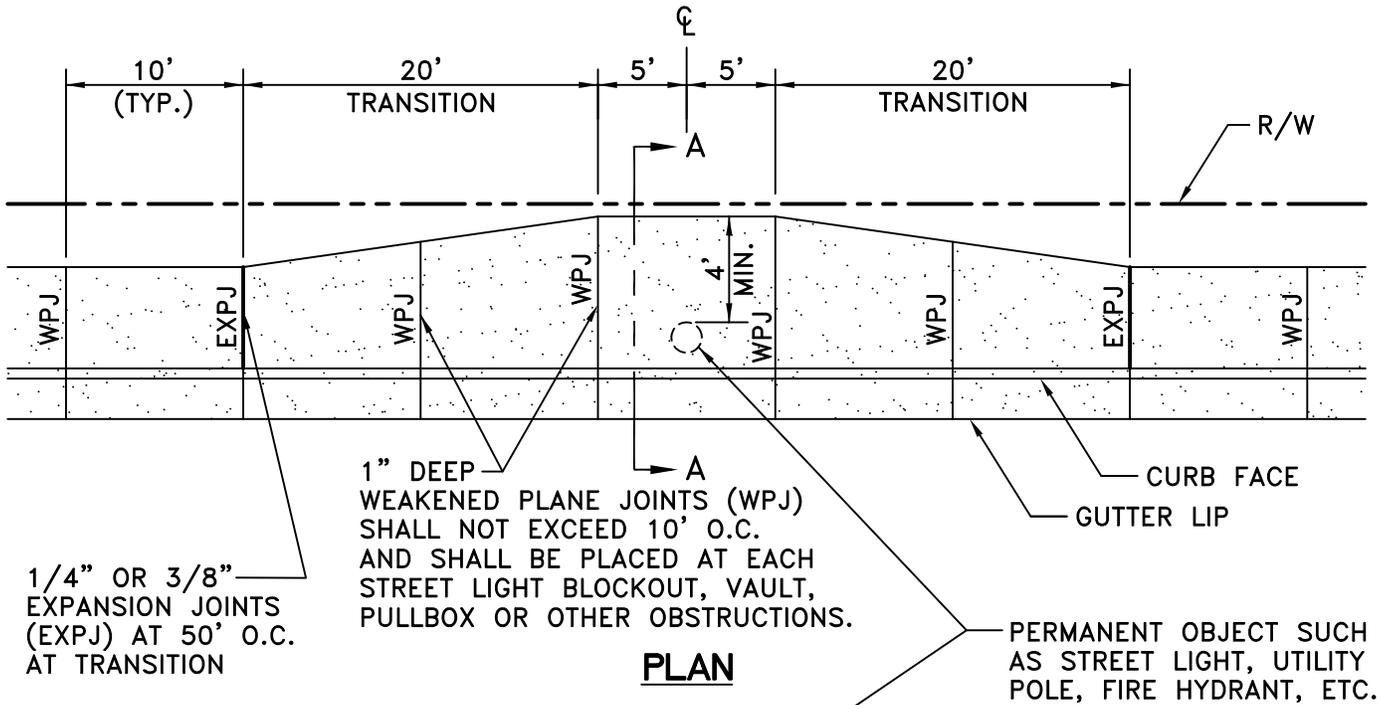


NOTES:

1. PCC SHALL BE CLASS 560-C-3250 AND MIN. 4" THICK FOR SIDEWALK AND 6" MIN. FOR DRIVEWAY AND VEHICLES.
2. PRIOR TO PLACING CONCRETE, SIDEWALK SUBGRADE SHALL BE PRESATURATED TO 125% OF OPTIMUM MOISTURE CONTENT TO A DEPTH OF 18".
3. CURB AND GUTTER SHALL BE CONSTRUCTED SEPARATELY FROM SIDEWALK, FOR DETAILS REFER TO CITY STD. 201.
4. TREE WELLS SHALL BE 5' LONG (MAX. 6') AND MAX. WIDTH UP TO 6', BUT MUST ALLOW 4' MIN. SIDEWALK FOR ADA REQUIREMENTS.
5. SIDEWALK TO BE FULL WIDTH IN COMMERCIAL ZONES AND ON ARTERIAL HIGHWAYS WHERE A BLOCK WALL ABUTS THE PROPERTY LINE.
6. SIDEWALK TO BE INSTALLED MIN. 5' WIDE AND CLEAR OF ABOVE GROUND OBSTRUCTIONS IN INDUSTRIAL ZONES, EXCEPT IN AREAS OF CONCENTRATED RETAIL USES WHERE SIDEWALK IS TO BE FULL WIDTH.
7. WHEN KEYWAY DOES NOT EXIST, USE EPOXY TO INSTALL #4 DOWELS - 12" LONG @18" O.C. 4" MIN. INTO BACK OF CURB, 3" BELOW TOP OF CURB.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			SIDEWALK AND CURB RETURNS 2012 EDITION	202

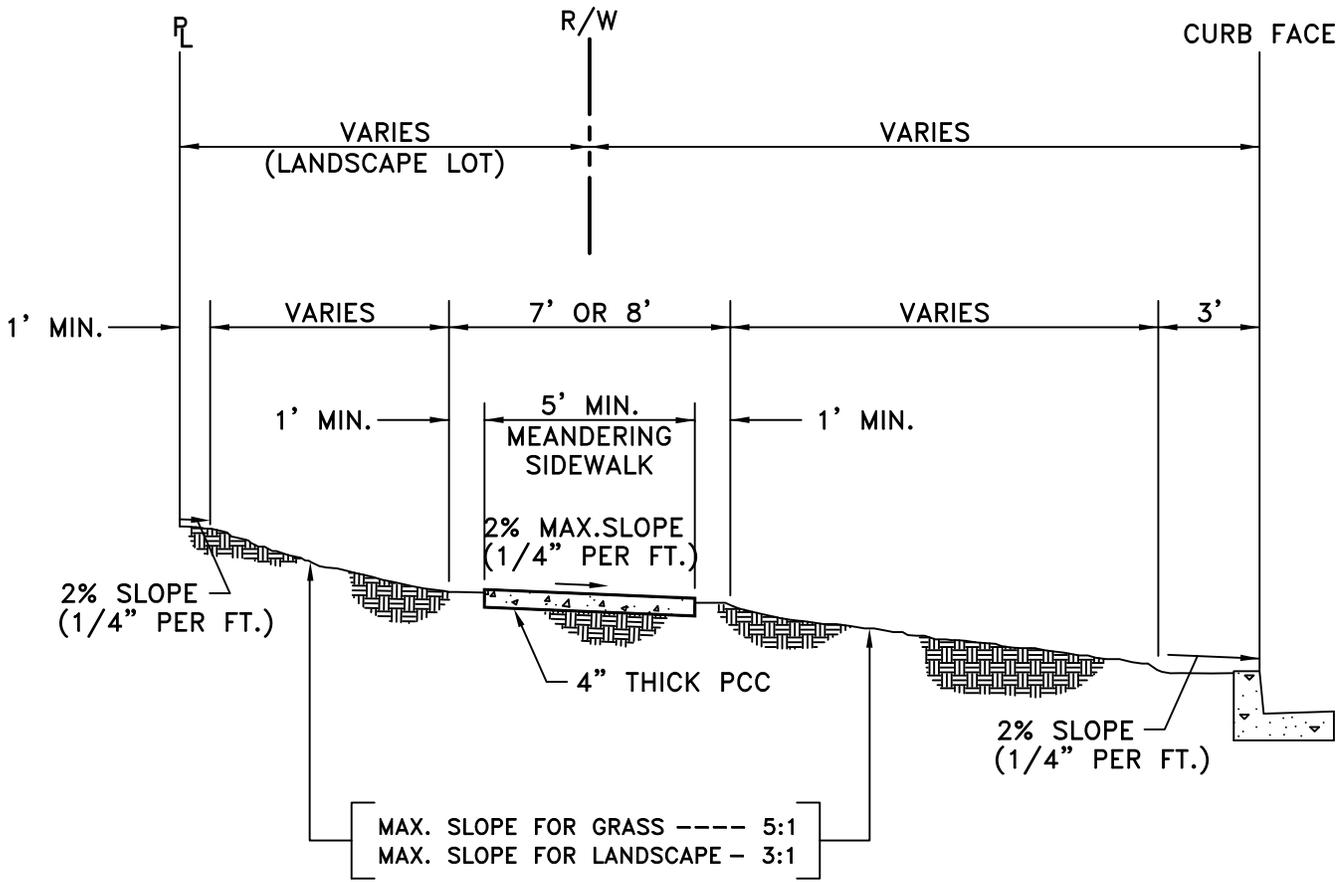


NOTES:

1. PCC SHALL BE CLASS 560-C-3250.
2. PRIOR TO PLACING CONCRETE, SIDEWALK SUBGRADE SHALL BE PRESATURATED TO 125% OF OPTIMUM MOISTURE CONTENT TO A DEPTH OF 18".

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			TYPICAL SIDEWALK OBSTRUCTION TRANSITION	203



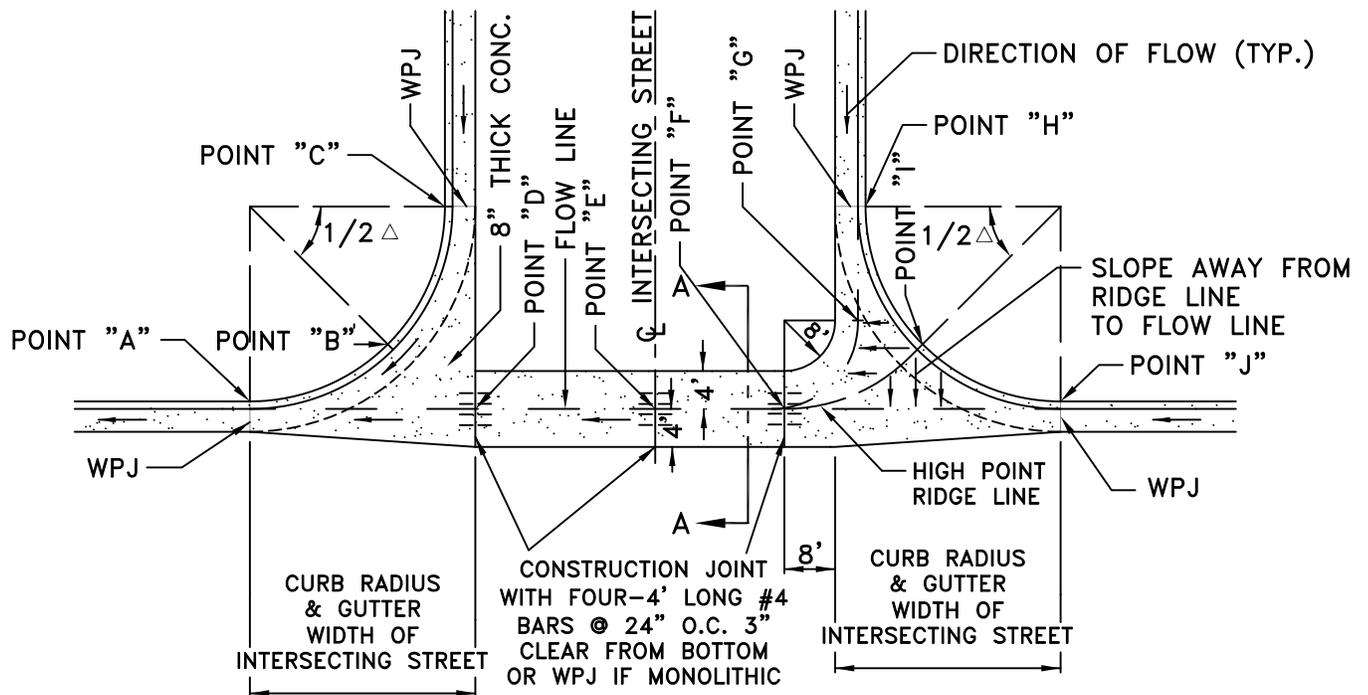
CROSS SECTION

NOTES:

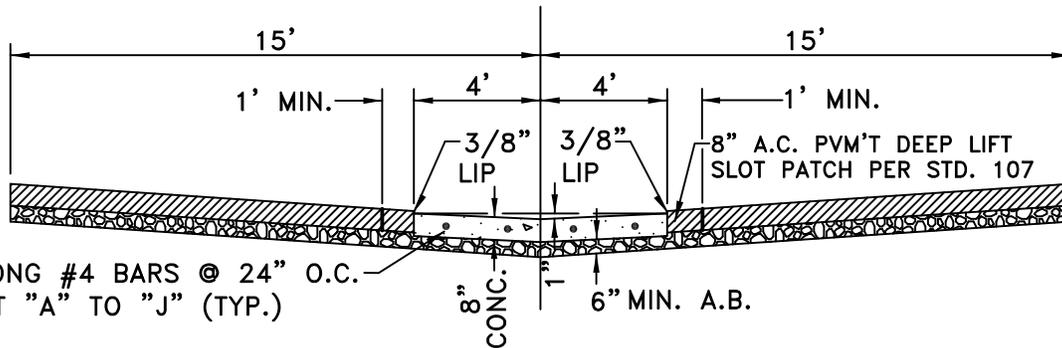
1. PCC SHALL BE CLASS 560-C-3250.
2. PRIOR TO PLACING CONCRETE, SIDEWALK SUBGRADE SHALL BE PRESATURATED TO 125% OF OPTIMUM MOISTURE CONTENT TO A DEPTH OF 18".
3. CONSTRUCT 1" DEEP WEAKENED PLANE JOINTS (WPJ) AT 10' O.C.
4. CONSTRUCT 1/4" EXPANSION JOINTS (EXPJ) AT 40' O.C.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS		STD. NO. 204
DATE	DESCRIPTION	APP'D	MEANDERING SIDEWALK AND PARKWAY SLOPES		
			2012 EDITION		



PLAN



FOUR 4' LONG #4 BARS @ 24" O.C. FROM POINT "A" TO "J" (TYP.)

SECTION A-A

PLAN VIEW NOTES:

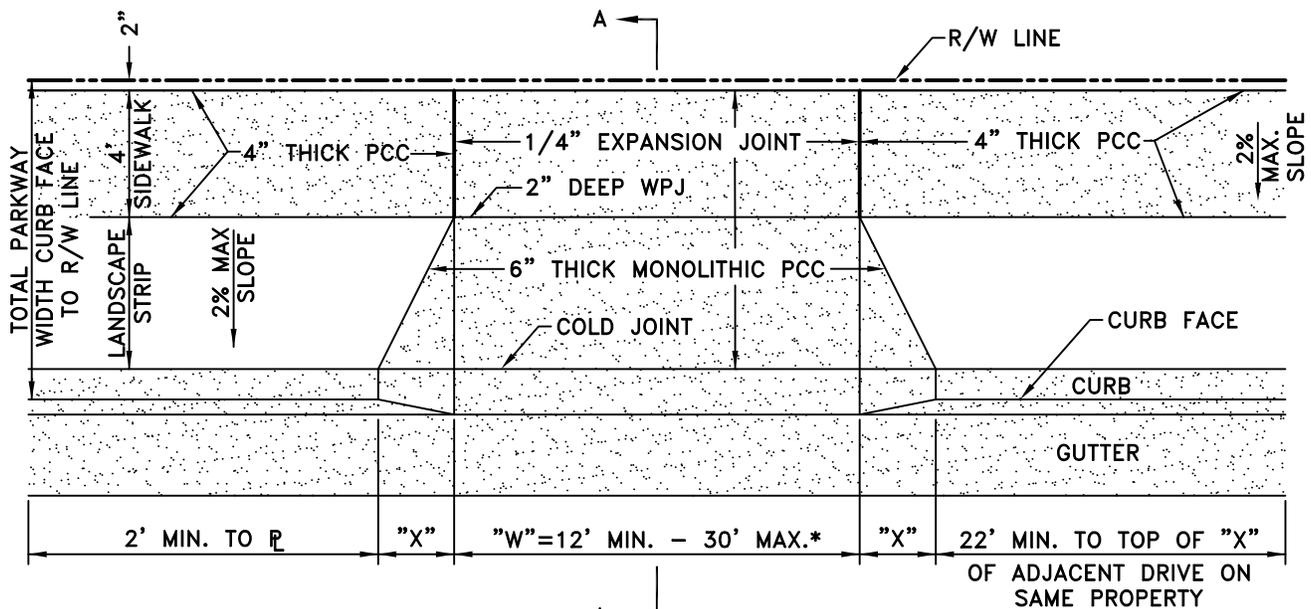
1. PCC SHALL BE CLASS 560-C-3250.
2. ALL WEAKENED PLANE JOINTS (WPJ) SHALL BE MIN. 2" DEEP AND ADDITIONAL (WPJ) SHALL BE REQUIRED AS DIRECTED BY CITY ENGINEER.
3. MINIMUM CURB RETURN, SPANDREL AND CROSS GUTTER FLOW LINE GRADES TO BE 1% UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
4. ON ENLARGED INTERSECTION DETAIL, CALL OUT TOP OF CURB AND FLOWLINE ELEVATIONS AT POINTS A,B,C,H AND J.
5. CALL OUT FLOWLINE ELEVATIONS AT POINTS D,E,F AND G.
6. CALL OUT TOP OF CURB AND TOP OF RIDGE LINE ELEVATION AT POINT I.
7. FLOW LINE TO BE STRAIGHT BETWEEN A AND J (PLAN VIEW).
8. TOP OF CURB TO BE ON STRAIGHT GRADE BETWEEN POINTS A AND C AND H AND J.

CONSTRUCTION NOTES:

1. STAKES TO BE SET TO FLOW LINE GRADE AT POINTS A,B,C,D,E,F,G,H AND J.
2. STAKE TO BE SET TO RIDGE LINE GRADE AT POINT I.
3. STAKES TO BE REMOVED JUST PRIOR TO FINAL CONCRETE FINISHING.

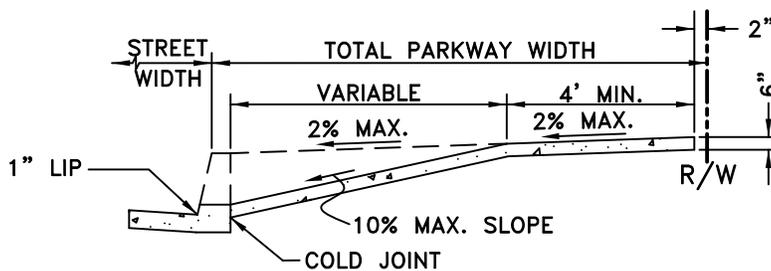
NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			CONCRETE CROSS GUTTER (RETROFIT ONLY)	205
			2012 EDITION	



PLAN

"X" = 2' FOR 6" CURB FACE
 "X" = 3' FOR 8" CURB FACE



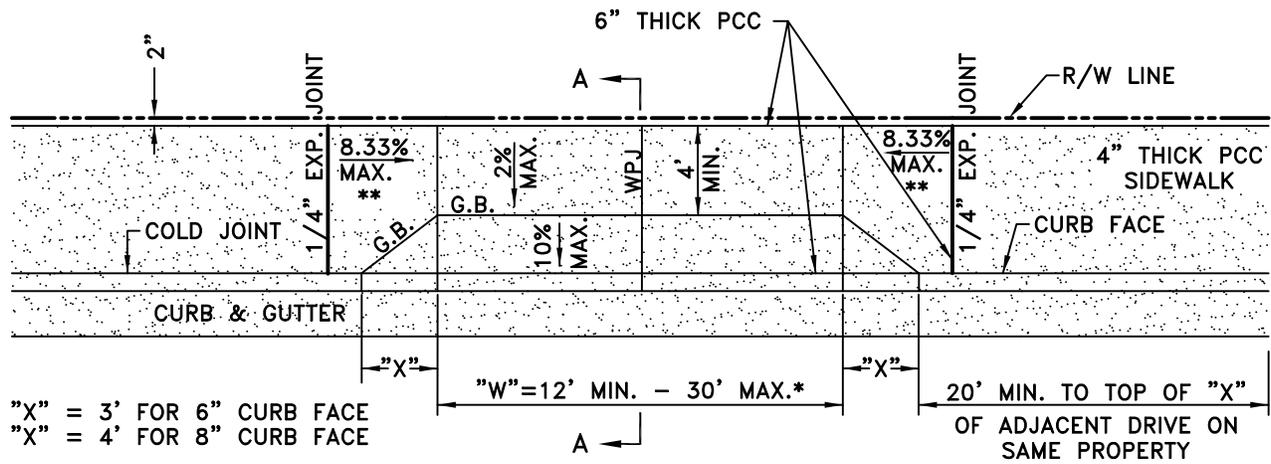
SECTION A-A

NOTES:

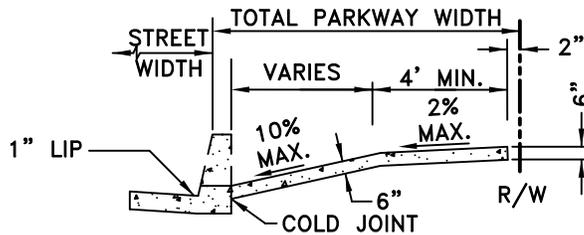
1. PCC SHALL BE CLASS 560-C-3250. WEAKENED PLANE JOINTS (WPJ) SHALL BE 10' MAX. O.C.
2. SAWCUT EXISTING CURB & GUTTER AS DIRECTED IN FIELD BY CITY ENGINEER AND REPLACE WITH NEW DEPRESSED CURB & GUTTER WHEN INSTALLING NEW DRIVEWAYS WHERE CURB IS EXISTING. CURB SLOT STD. NO. 107 SHALL BE USED UNLESS OTHERWISE APPROVED BY CITY ENGINEER.
3. 6" OF CLASS II AGGREGATE BASE UNDER CURB AND DRIVE APRON WHEN "R" VALUE OF EXISTING SOIL IS 10 OR LESS OR WHEN DIRECTED BY THE CITY ENGINEER.
4. CURB AND GUTTER TO BE SEPARATE POUR FROM DRIVE APRON UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
5. A COURSE BROOM FINISH TRANSVERSE TO THE LINE OF TRAFFIC SHALL BE USED ON THE APPROACH OTHER THAN THE CURB AND GUTTER AREA. THE CURB AND GUTTER AREA SHALL HAVE A MEDIUM BROOM FINISH PARALLEL TO THE LINE OF TRAFFIC.
6. 22' MINIMUM OF FULL HEIGHT CURB IS REQUIRED BETWEEN DRIVEWAYS SERVING THE SAME PARCEL. A 2' MINIMUM LENGTH OF FULL HEIGHT CURB IS REQUIRED BETWEEN DRIVEWAY AND PROPERTY LINE.
- *7. 24' MAX. FOR A TWO-CAR GARAGE OR 30' FOR A THREE-CAR GARAGE.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			RESIDENTIAL DRIVEWAY APRON AND DEPRESSED CURB	206



PLAN



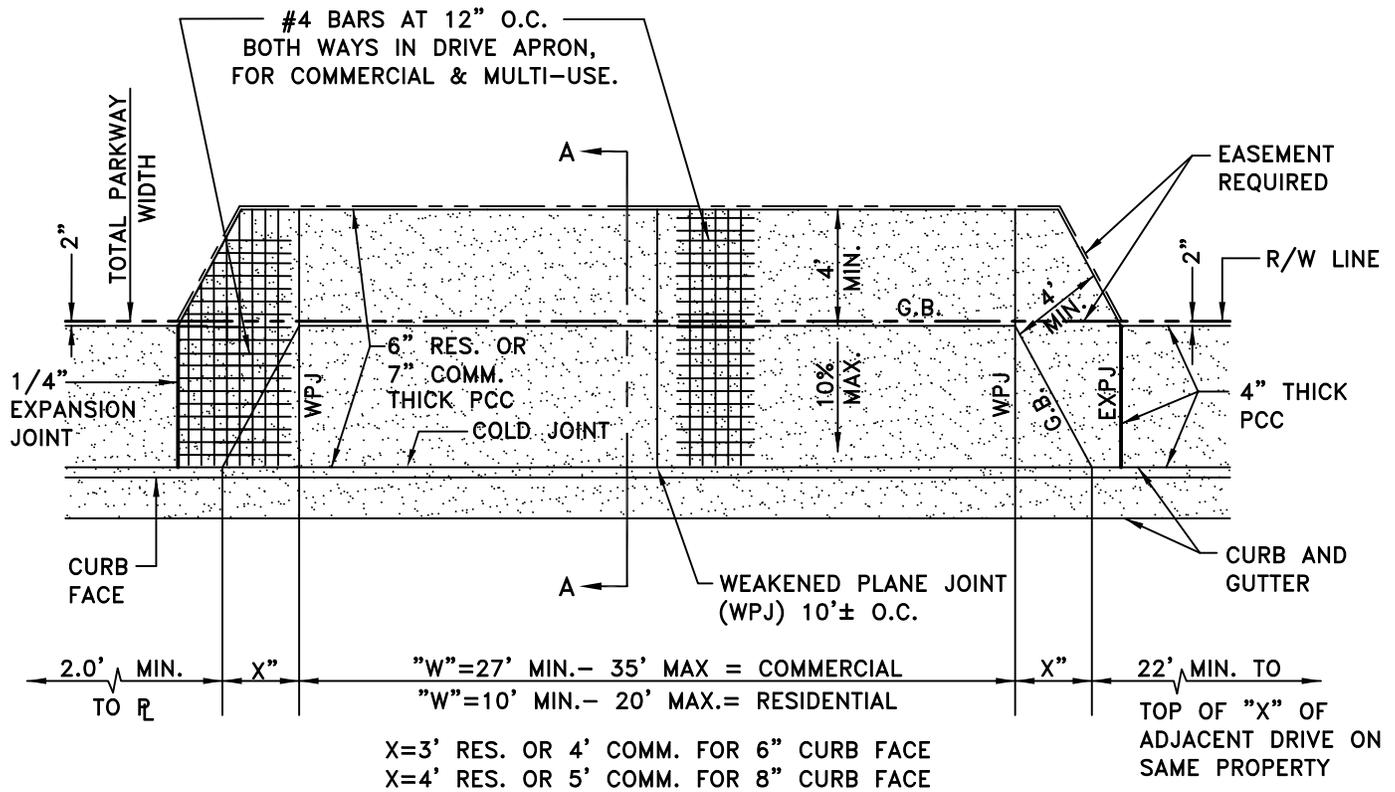
SECTION A-A

NOTES:

1. PCC SHALL BE CLASS 560-C-3250. WEAKENED PLANE JOINTS (WPJ) SHALL BE 10' MAX. O.C.
2. SAWCUT EXISTING CURB & GUTTER AS DIRECTED IN FIELD BY CITY ENGINEER AND REPLACE WITH NEW DEPRESSED CURB & GUTTER WHEN INSTALLING NEW DRIVEWAYS WHERE CURB IS EXISTING. CURB SLOT STD. NO. 107 SHALL BE USED UNLESS OTHERWISE APPROVED BY CITY ENGINEER.
3. 6" OF CLASS II AGGREGATE BASE UNDER CURB AND DRIVE APRON WHEN "R" VALUE OF EXISTING SOIL IS 10 OR LESS OR WHEN DIRECTED BY THE CITY ENGINEER.
4. CURB AND GUTTER TO BE SEPARATE POUR FROM DRIVE APRON UNLESS OTHERWISE APPROVED BY CITY ENGR.
5. A COURSE BROOM FINISH TRANSVERSE TO THE LINE OF TRAFFIC SHALL BE USED ON THE APPROACH OTHER THAN THE CURB AND GUTTER AREA. THE CURB AND GUTTER AREA SHALL HAVE A MEDIUM BROOM FINISH PARALLEL TO THE LANE OF TRAFFIC.
6. 22' MINIMUM OF FULL HEIGHT CURB IS REQUIRED BETWEEN DRIVEWAYS SERVING THE SAME PARCEL. A 2' MINIMUM LENGTH OF FULL HEIGHT CURB IS REQUIRED BETWEEN DRIVEWAY AND PROPERTY LINE.
- *7. 24' FOR A TWO-CAR GARAGE OR 30' FOR A THREE-CAR GARAGE.
- **8. PROVIDE GROOVES (PER CITY STD. 209) IF SLOPE EXCEEDS 5%.

NO SCALE

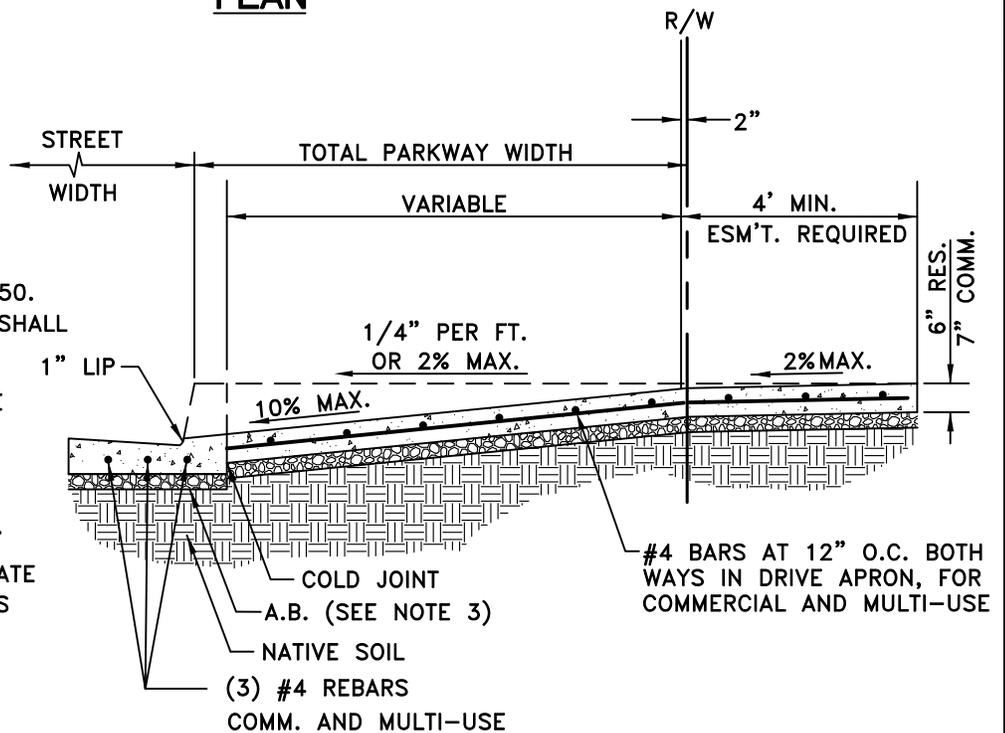
REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			RESIDENTIAL DRIVEWAY APRON AND DEPRESSED CURB	207
			2012 EDITION	



PLAN

NOTES:

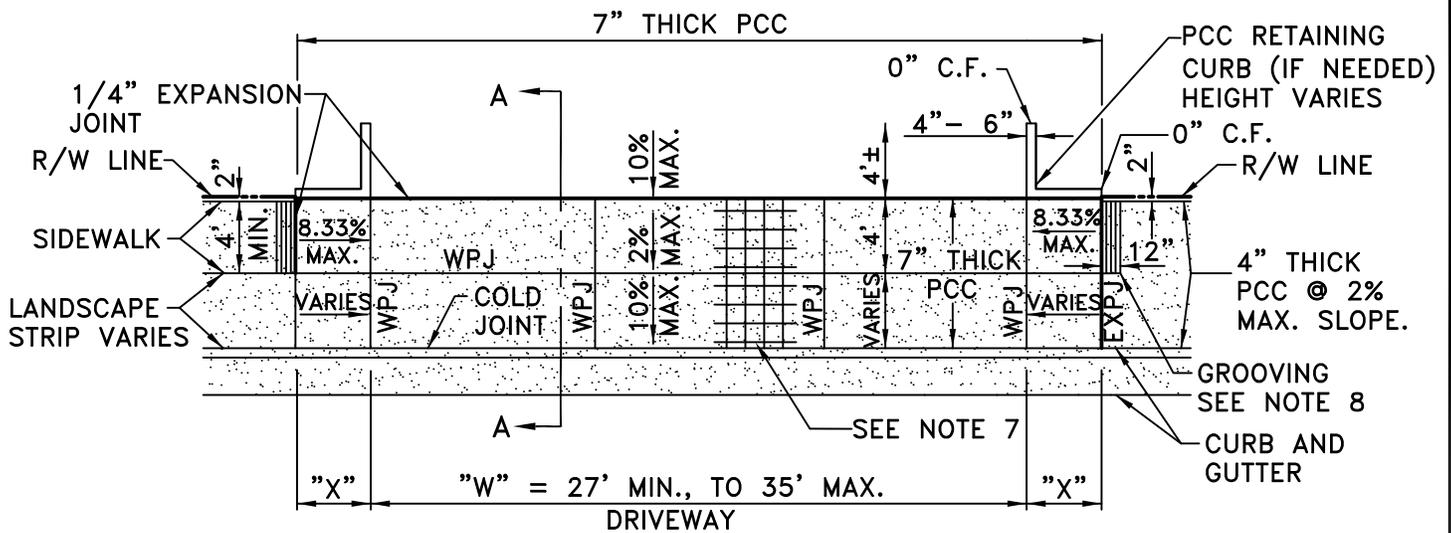
1. PCC SHALL BE CLASS 560-C-3250. WEAKENED PLANE JOINTS (WPJ) SHALL BE 10' MAX. O.C.
2. 6" OF CLASS II AGGREGATE BASE UNDER CURB AND DRIVE APRON WHEN "R" VALUE OF EXISTING SOIL IS 10 OR LESS OR WHEN DIRECTED BY THE CITY ENGINEER.
3. CURB AND GUTTER TO BE SEPARATE POUR FROM DRIVE APRON UNLESS OTHERWISE APPROVED.



SECTION A-A

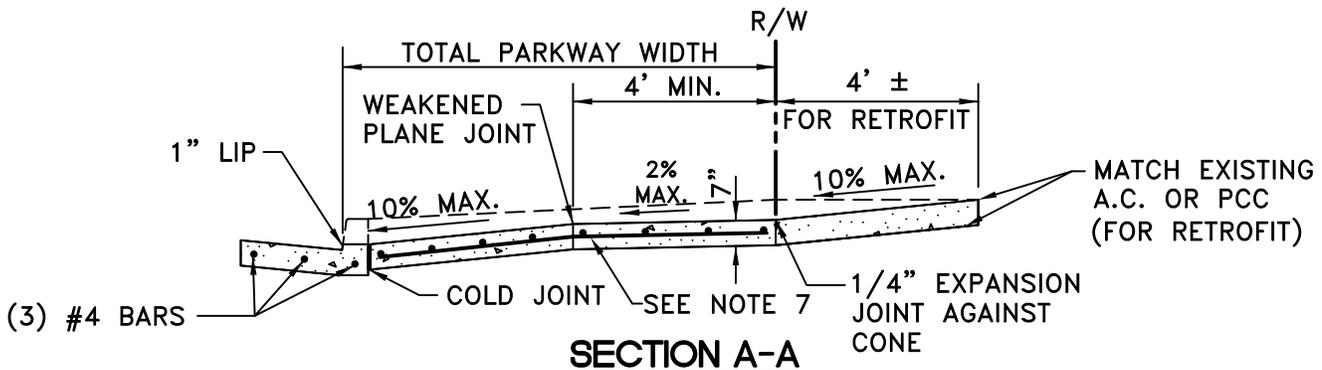
NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			DRIVEWAY APRON AND DEPRESSED CURB (RETROFIT ONLY)	208
			2012 EDITION	



X=4' FOR 6" CURB FACE
 X=5' FOR 8" CURB FACE

PLAN



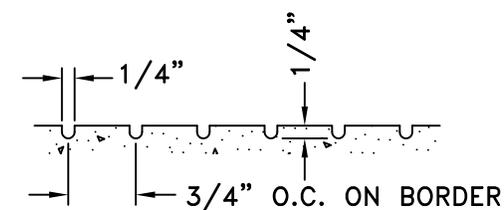
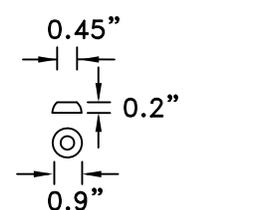
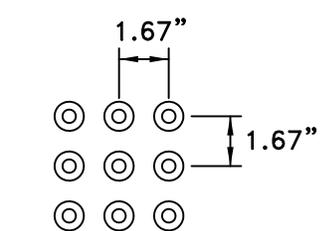
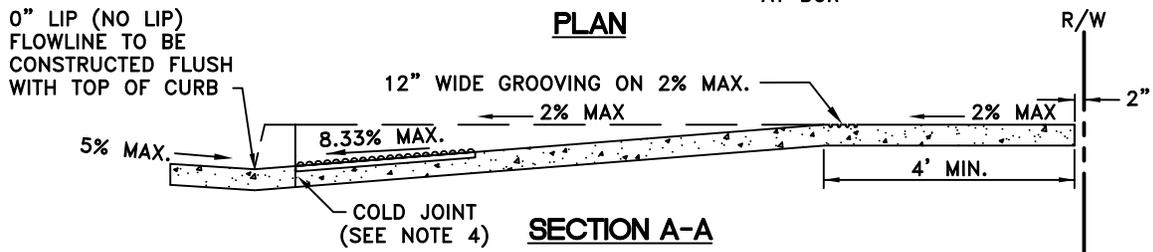
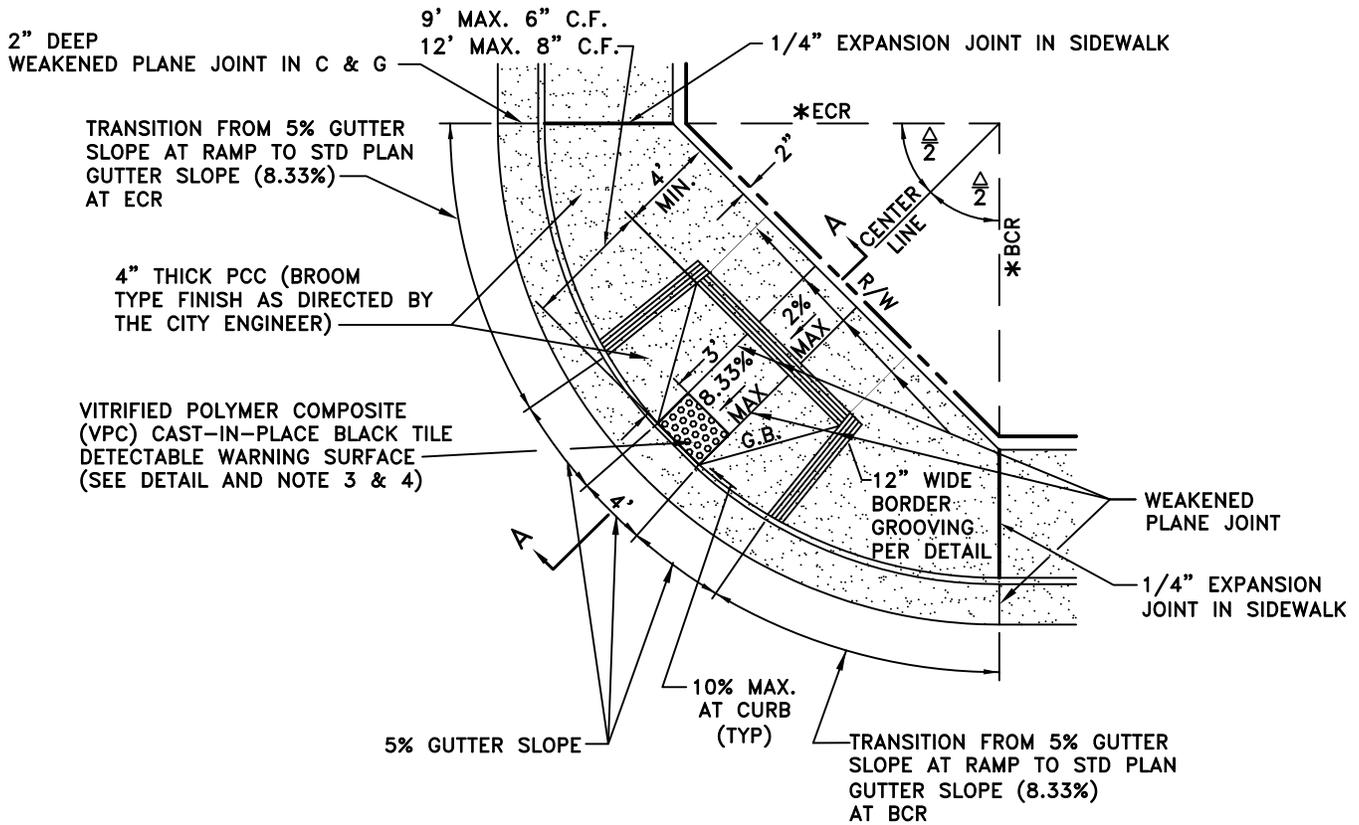
SECTION A-A

NOTES:

1. PCC SHALL BE CLASS 560-C-3250. WEAKENED PLANE JOINTS (WPJ) SHALL BE 10' MAX. O.C.
2. SAWCUT EXISTING CURB AND GUTTER AND REPLACE WITH NEW DEPRESSED CURB AND GUTTER WHEN INSTALLING NEW DRIVEWAYS WHERE CURB IS EXISTING.
3. 6" OF CLASS II AGGREGATE BASE UNDER CURB AND DRIVE APRON WHEN "R" VALUE OF EXISTING SOIL IS 10 OR LESS OR WHEN DIRECTED BY THE CITY ENGINEER.
4. CURB AND GUTTER TO BE SEPARATE POUR FROM DRIVE APRON UNLESS OTHERWISE AUTHORIZED.
5. A COURSE BROOM FINISH TRANSVERSE TO THE LINE OF TRAFFIC SHALL BE USED ON THE APPROACH OTHER THAN THE CURB AND GUTTER AREA. THE CURB AND GUTTER AREA SHALL HAVE A MEDIUM BROOM FINISH PARALLEL TO THE LINE OF TRAFFIC.
6. A 22' MINIMUM LENGTH OF FULL HEIGHT CURB IS REQUIRED BETWEEN DRIVEWAYS SERVING THE SAME PARCEL. A 2' MINIMUM LENGTH OF FULL HEIGHT CURB IS REQUIRED BETWEEN DRIVEWAY AND PROPERTY LINE.
7. #4 BARS AT 12" O.C. BOTH WAYS IN COMMERCIAL OR MULTI-USE DRIVE APRON.
8. GROOVES SHALL BE 1/4" WIDE APPROXIMATELY 3/4" ON CENTER. (OMIT IF SLOPE IS < 5%)

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			COMMERCIAL DRIVEWAY APRON AND DEPRESSED CURB	609
			2012 EDITION	



RAISED TRUNCATED DOME PATTERN

RAISED TRUNCATED DOME CROSS-SECTION

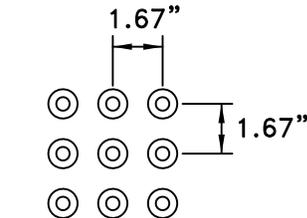
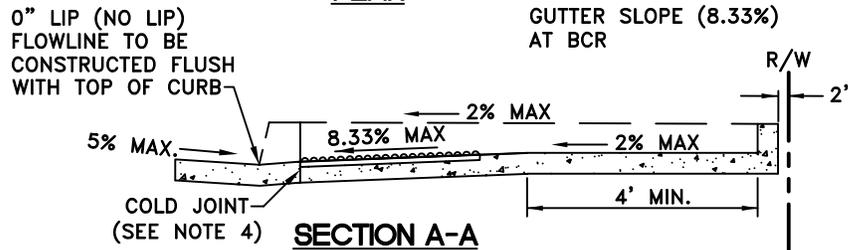
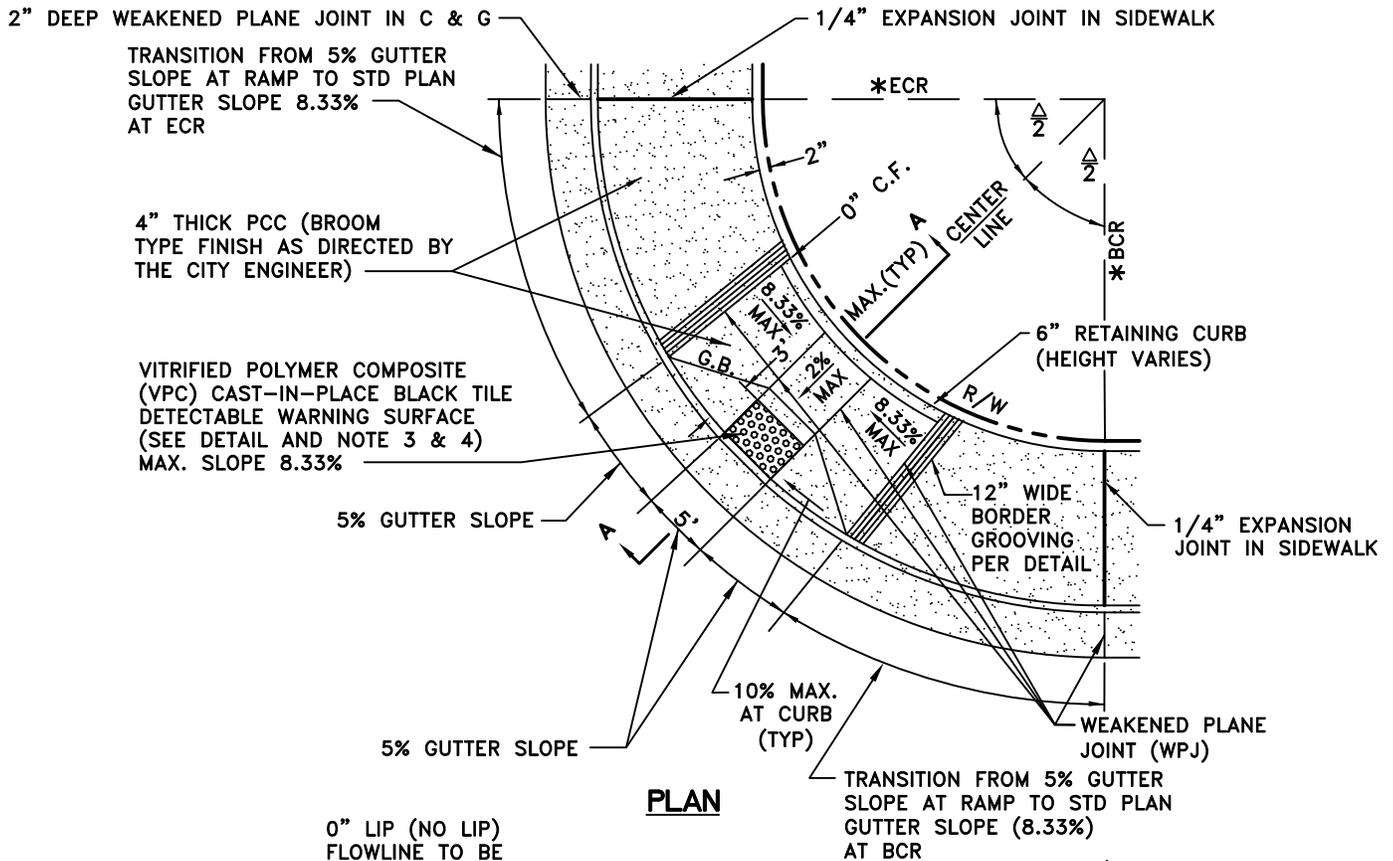
GROOVING DETAIL

DETECTABLE WARNING SURFACE DETAIL

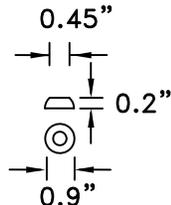
NOTES:

1. PCC SHALL BE CLASS 560-C-3250. WEAKENED PLANE JOINTS (WPJ) SHALL BE 10' MAX. O.C.
2. WHEN $\Delta=90^\circ$ OR WHEN SITE CONSTRAINTS EXIST, A SPECIAL DESIGN IS REQUIRED TO MEET MINIMUM STATE AND FEDERAL ACCESSIBILITY REQUIREMENTS FOR THE DISABLED.
3. BLACK 3' X 4' "ARMOR-TILE" (OR APPROVED EQUAL) CAST-IN-PLACE DETECTABLE WARNING SURFACE SHALL BE USED.
4. THE BACK OF THE CONCRETE CURB SHALL BE STRAIGHT AND FLUSH WITH THE DETECTABLE WARNING SURFACE. ALL C & G SHALL BE CONSTRUCTED WITH CHAMFERED 1" X 2" KEYWAY PER CITY STD. 201.
- *5. CURB RAMP CONSTRUCTION SHALL INCLUDE ALL WORK FROM BCR TO ECR. NO SCALE

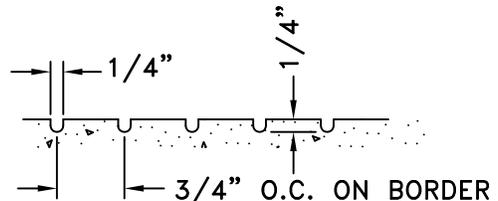
REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	CURB RAMP	
			2012 EDITION	
			211	



**RAISED TRUNCATED
DOME PATTERN**



**RAISED TRUNCATED
DOME CROSS-SECTION**

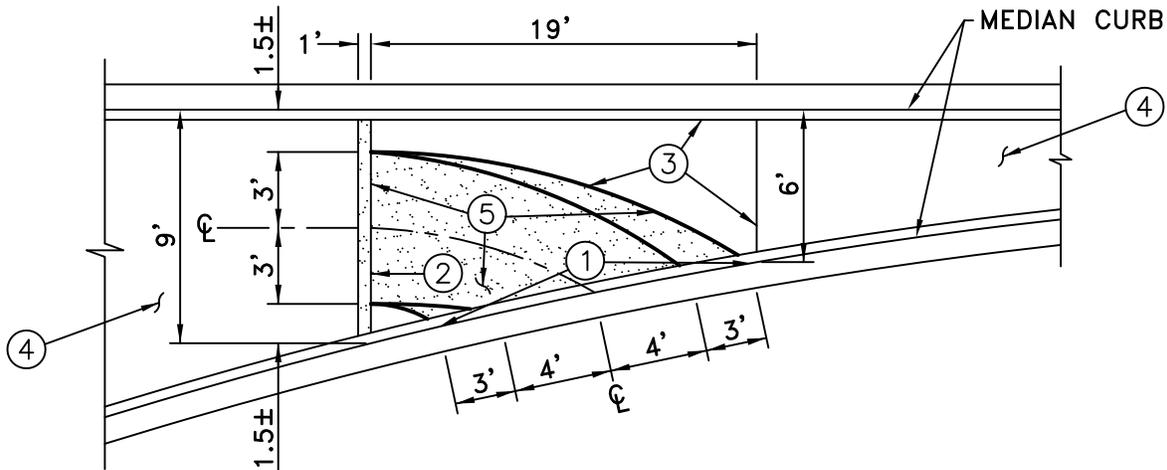


GROOVING DETAIL

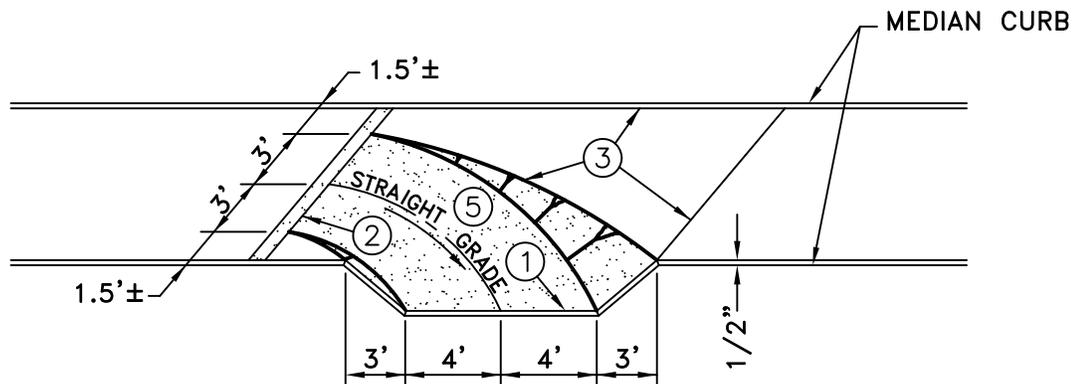
NOTES:

1. PCC SHALL BE CLASS 560-C-3250. WEAKENED PLANE JOINTS (WPJ) SHALL BE 10' MAX. O.C.
2. WHEN $\Delta=90^\circ$ OR WHEN SITE CONSTRAINTS EXIST, A SPECIAL DESIGN IS REQUIRED TO MEET MINIMUM STATE AND FEDERAL ACCESSIBILITY REQUIREMENTS FOR THE DISABLED.
3. BLACK 3' X 5' "ARMOR-TILE" (OR APPROVED EQUAL) CAST-IN-PLACE DETECTABLE WARNING SURFACE SHALL BE USED.
4. THE BACK OF THE CONCRETE CURB SHALL BE STRAIGHT AND FLUSH WITH THE DETECTABLE WARNING SURFACE. ALL C & G SHALL BE CONSTRUCTED WITH CHAMFERED 1" X 2" KEYWAY PER CITY STD. 201.
- *5. CURB RAMP CONSTRUCTION SHALL INCLUDE ALL WORK FROM BCR TO ECR. NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	RADIUS CURB RAMP (RETROFIT ONLY)	
			2012 EDITION	211 R



PLAN



SECTION

NOTES:

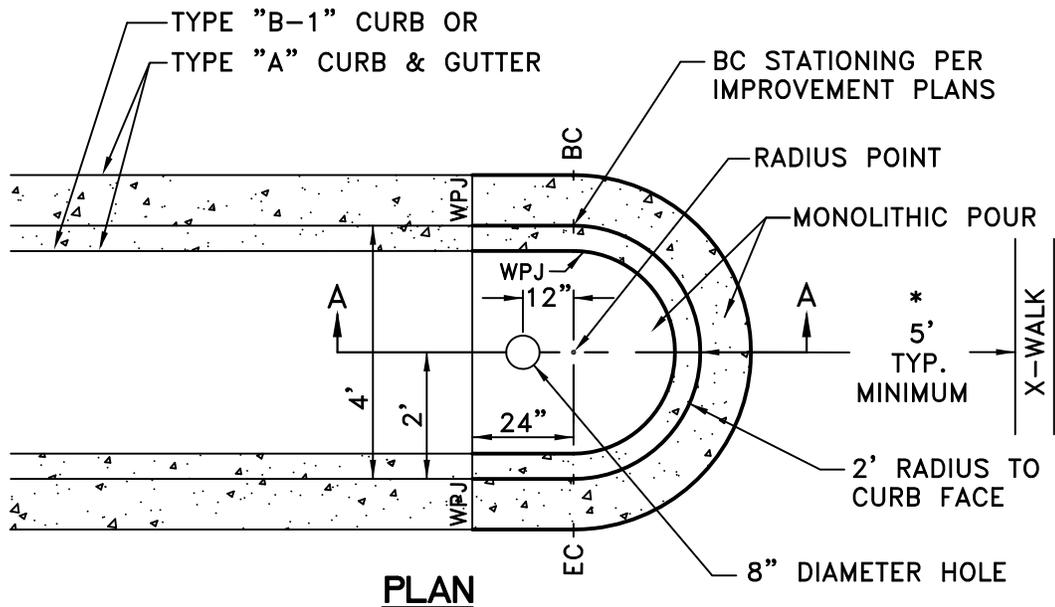
1. P.C.C. SHALL BE CLASS 560-C-3250.
2. PROTECT EXIST. MOISTURE BARRIERS.

CONSTRUCTION NOTES:

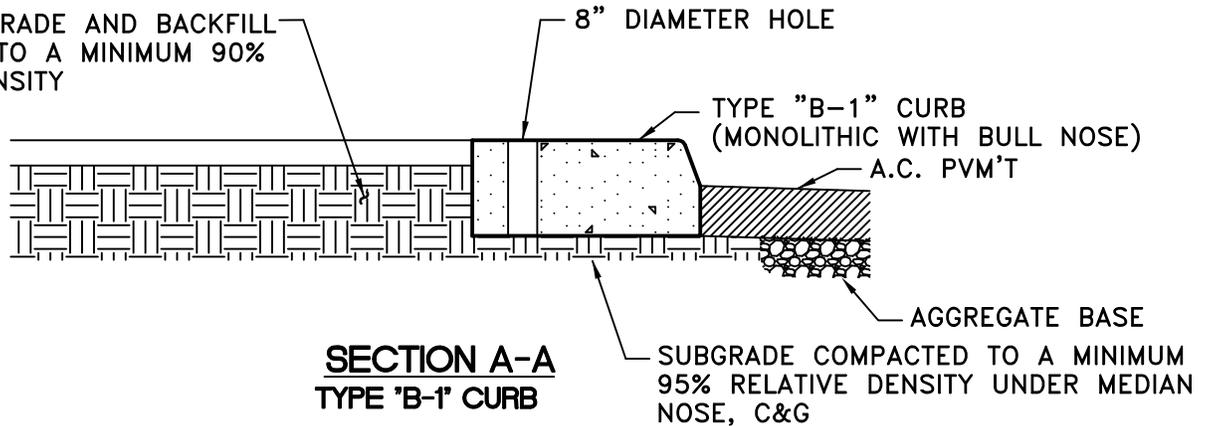
- ① CONSTRUCT HORIZONTAL CURB CUT.
- ② CONSTRUCT 12" WIDE, 6" THICK P.C.C. MOWSTRIP W/1-#4 BAR.
- ③ CONSTRUCT CONCRETE PAVERS PER CITY STANDARD NO. 214 USING OLSEN PAVINGSTONE ANTIQUE COBBLE, B-8 TERRA COTTA/BROWN, "1" PATTERN OR APPROVED EQUAL, OR AS SPECIFIED ON PLAN.
- ④ CONSTRUCT CONCRETE PAVERS PER CITY STANDARD NO. 214 OR LANDSCAPING PER PLAN.
- ⑤ CONSTRUCT 6" THICK P.C.C. OVER 6" AGGREGATE BASE COMPACTED TO A MINIMUM 95% RELATIVE DENSITY.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			MEDIAN MAINTENANCE ACCESS RAMP	212

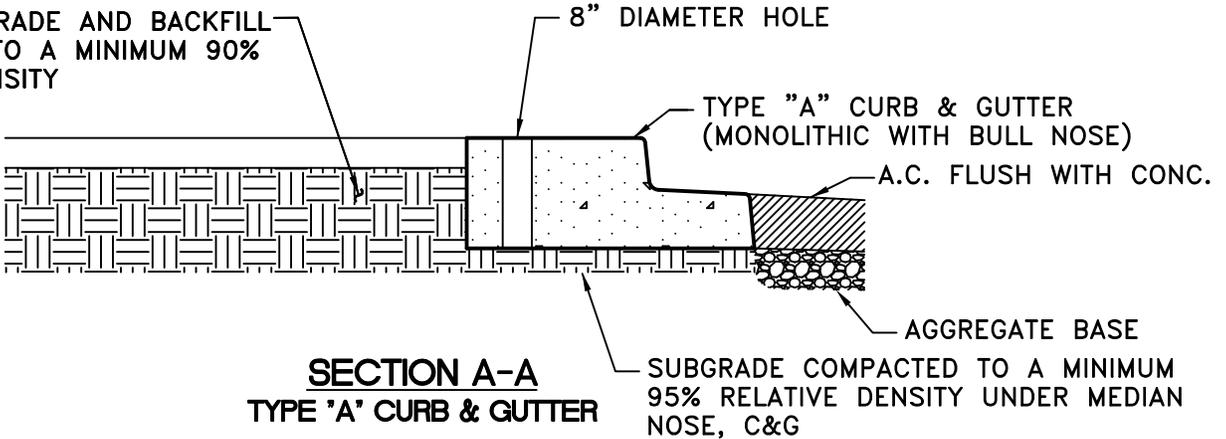


NATIVE SUBGRADE AND BACKFILL
COMPACTED TO A MINIMUM 90%
RELATIVE DENSITY



SECTION A-A
TYPE 'B-1' CURB

NATIVE SUBGRADE AND BACKFILL
COMPACTED TO A MINIMUM 90%
RELATIVE DENSITY

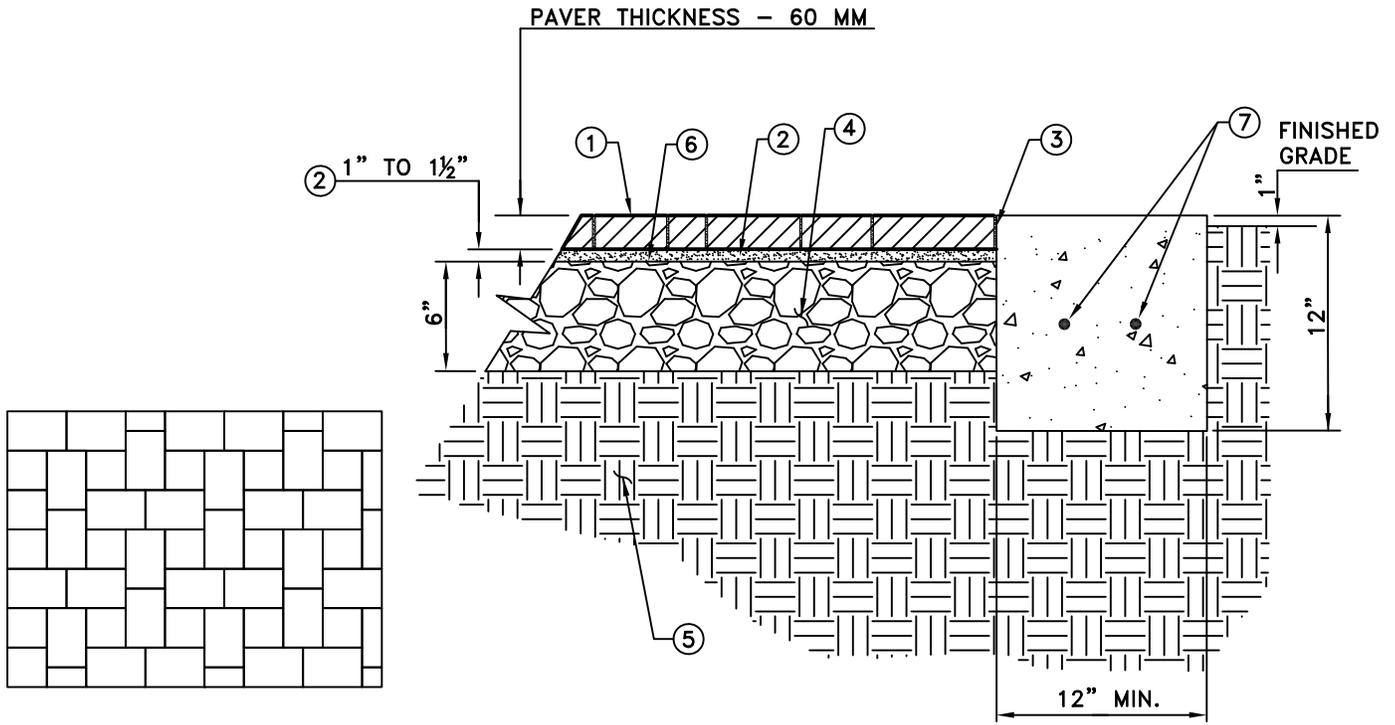


SECTION A-A
TYPE 'A' CURB & GUTTER

NOTES:

1. P.C.C. SHALL BE CLASS 560-C-3250.
 - *2. MEDIAN NOSE TO BE LOCATED PER CITY STANDARD NO. 508. (15' FROM 1/2Δ)
 3. 8" DIA. HOLE WILL BE FILLED WITH TAMPED TEMP. A.C. AFTER SIGN PLACEMENT.
- NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	CONCRETE MEDIAN NOSE	
			2012 EDITION	213



"I" PATTERN

SECTION

NOTES:

1. THIS STANDARD MAY NOT APPLY TO THE TUSTIN LEGACY OR OTHER AREAS OF THE CITY.
2. THE CONTRACTOR SHALL SUBMIT DETAILED SPECIFICATION AND PROVIDE A 4' X 4' MOCK-UP FOR REVIEW AND APPROVAL BY CITY AND/OR LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
3. GEOTECHNICAL REPORT TO INCLUDE RECOMMENDATIONS FOR ALL PAVER SECTIONS.

CONSTRUCTION NOTES:

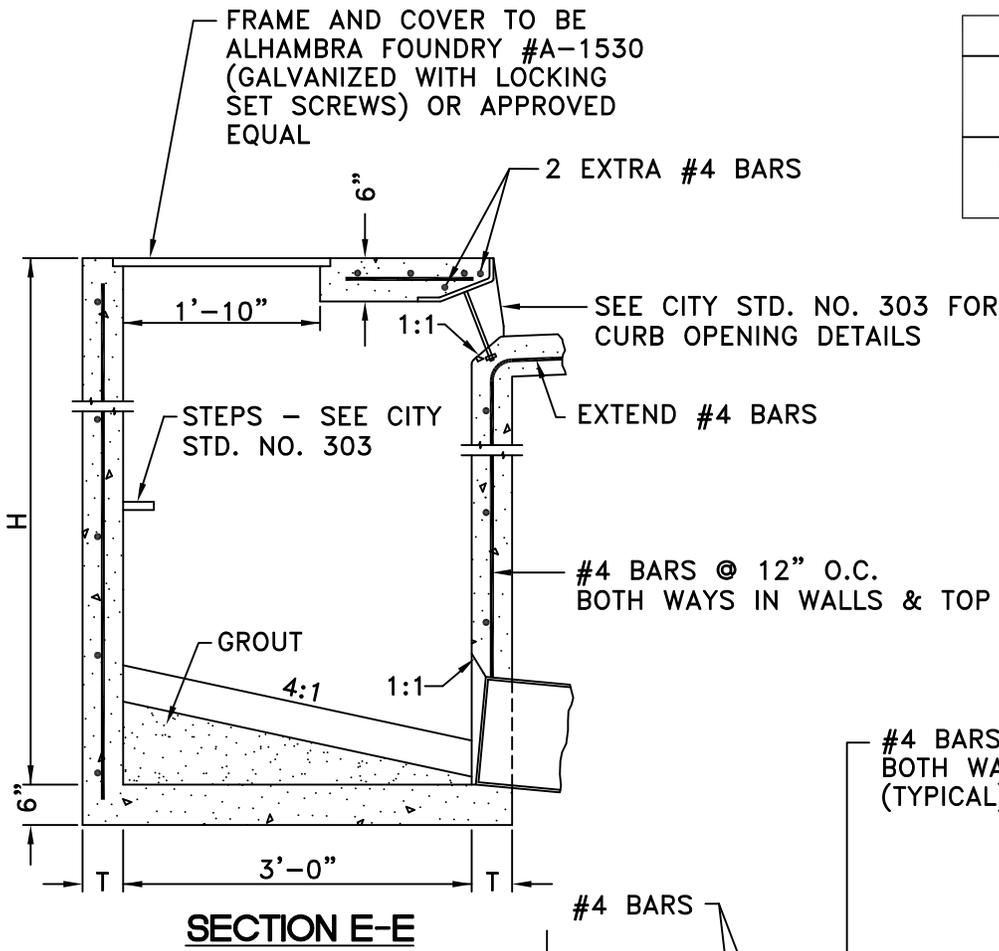
- ① CONCRETE PAVERS WITH SAND SWEEP JOINTS. CONSTRUCT CONCRETE PAVERS USING OLSEN PAVINGSTONE ANTIQUE COBBLE, B-8 TERRA COTTA/BROWN, "I" PATTERN (AS SHOWN ABOVE), OR APPROVED EQUAL.
- ② 1" TO 1 1/2" BEDDING SAND – PER SPECIFICATION.
- ③ BUTT JOINT – SWEEP SAND INTO OPENINGS.
- ④ 6" MIN. CLASS II BASE COMPACTED TO A MINIMUM 95% RELATIVE DENSITY. (DEPTH PER GEOTECHNICAL REPORT).
- ⑤ COMPACT SUBGRADE TO A MINIMUM 90% RELATIVE DENSITY.
- ⑥ 12" WIDE GEOTEXTILE ALONG PERIMETER – TURN UP AT CURB OR VERTICAL SURFACE.
- ⑦ POURED CONCRETE WITH 2-#4 BARS CONTINUOUS (AT PEDESTRIAN EDGES AGAINST ALL PLANTING AREAS). PCC SHALL BE CLASS 560-C-3250.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			MEDIAN INTERLOCKING CONCRETE PAVERS	214
			2012 EDITION	

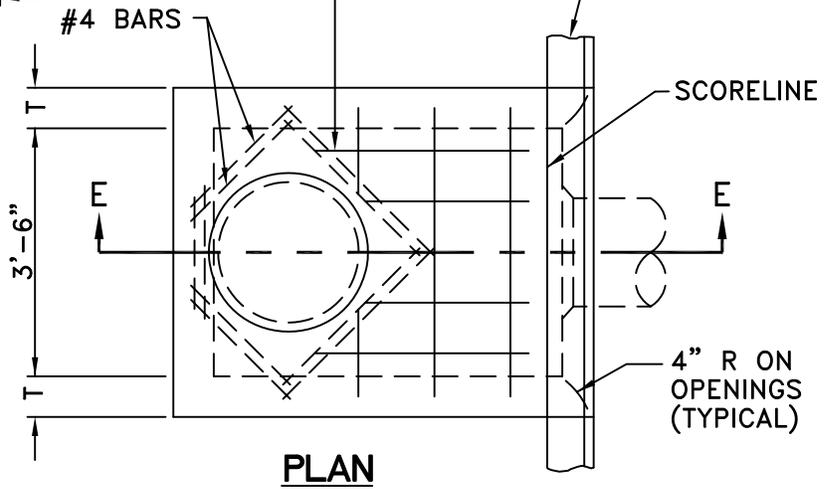
SECTION 300

STORM DRAINS, FLOOD CONTROL & WATER QUALITY



H	T
8'-0" OR LESS	6"
8'-1" TO 20'-0"	8"

SECTION E-E



PLAN

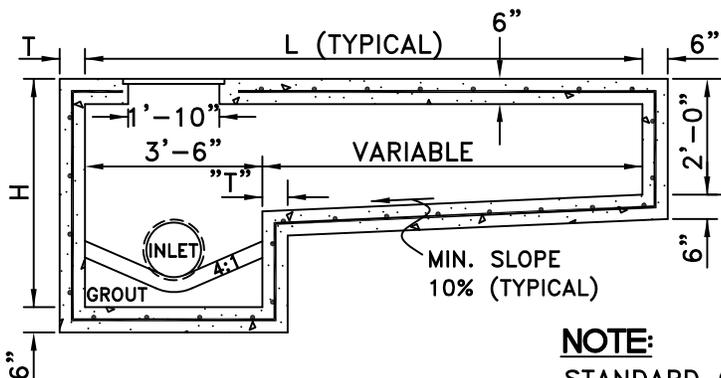
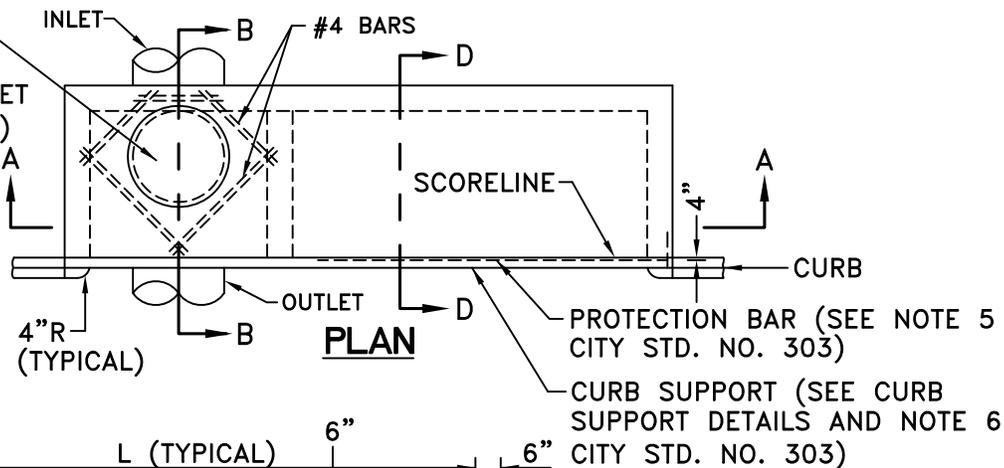
NOTES:

1. PCC SHALL BE CLASS 560-C-3250.
2. OS = CURB OPENING SMALL.
3. FOR DETAILS & NOTES, SEE CITY STD. NO. 303.
4. FOR LOCAL DEPRESSIONS, SEE CITY STD. NO. 304.
5. CURB OPENING SHALL CONFORM TO CURB ALIGNMENT.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			CATCH BASIN - INLET TYPE OS	301

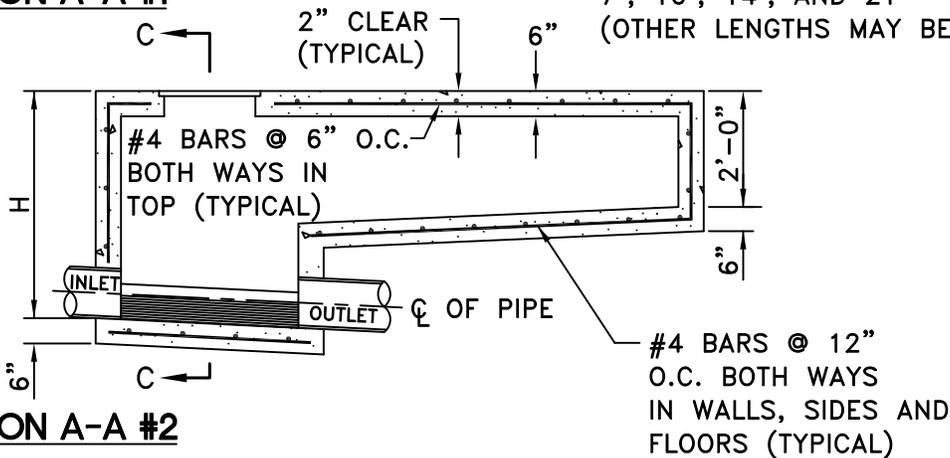
FRAME AND COVER TO BE ALHAMBRA FOUNDRY #A-1530 (GALVANIZED WITH LOCKING SET SCREWS OR APPROVED EQUAL)



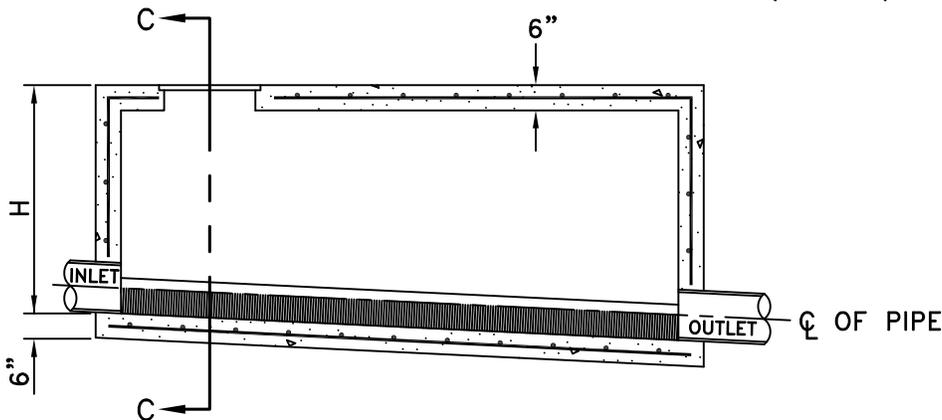
ALT. SECTION A-A #1

NOTE:

STANDARD OPENING LENGTHS "L" ARE 7', 10', 14', AND 21' (OTHER LENGTHS MAY BE USED)



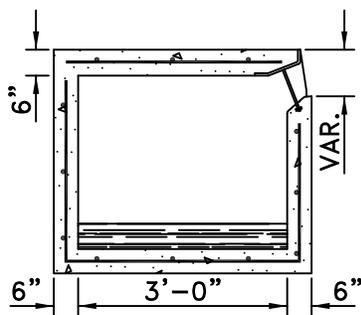
ALT. SECTION A-A #2



ALT. SECTION A-A #3

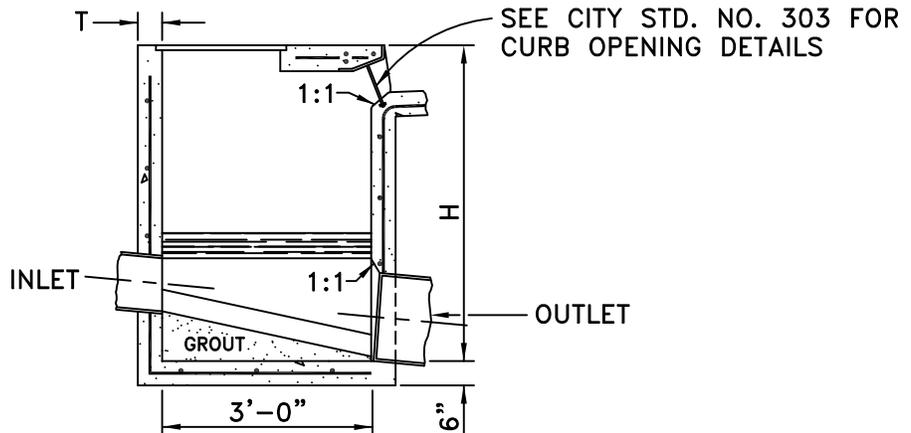
NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			CATCH BASIN - INLET TYPE OL	302
			2012 EDITION	

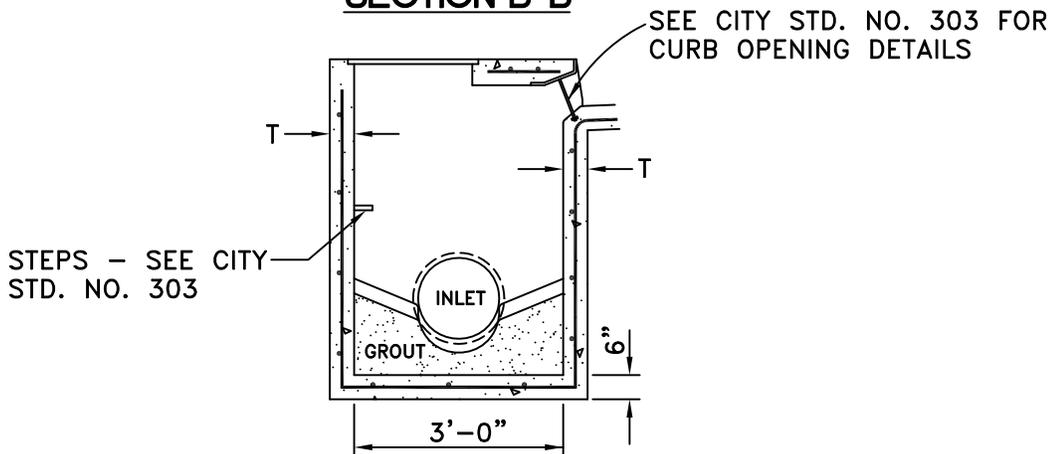


H	T
8'-0" OR LESS	6"
8'-1" TO 20'-0"	8"

SECTION D-D



SECTION B-B



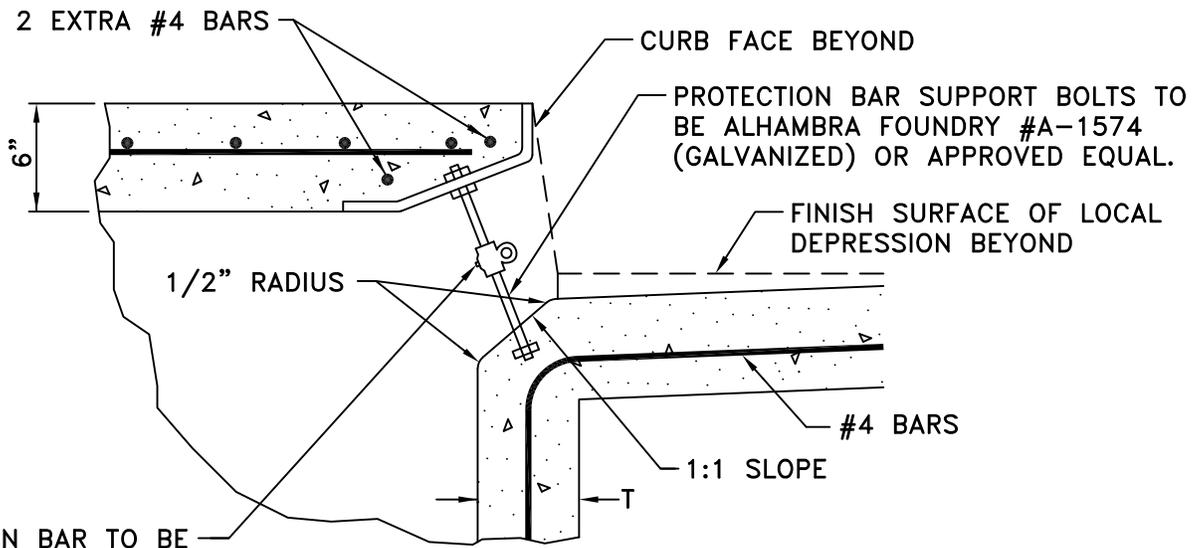
SECTION C-C

NOTES:

1. PCC SHALL BE CLASS 560-C-3250.
2. OL = CURB OPENING LARGE.
3. FOR DETAILS & NOTES, SEE CITY STD. NO. 303. FOR LOCAL DEPRESSIONS, SEE CITY STD. NO. 304. CURB OPENING SHALL CONFORM TO CURB ALIGNMENT.
4. ALT. SECTION A-A #1, #2, OR #3 MAY BE USED DEPENDING ON ALIGNMENT & DEPTH OF STORM DRAIN PIPE.
5. THE WORDS "NO DUMPING, DRAINS TO OCEAN" SHALL BE STENCILED ON TOP OF THE CATCH BASIN INLET WITH 2-INCH LETTERS USING BLACK EPOXY PAINT. ANY VARIATIONS MUST BE APPROVED BY THE CITY ENGINEER.

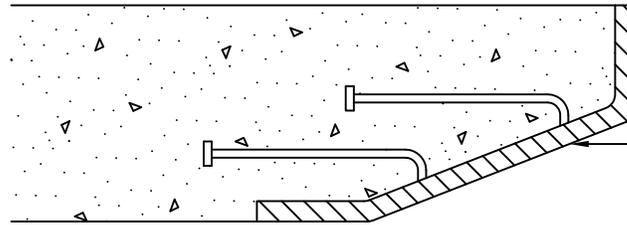
NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS		STD. NO.
DATE	DESCRIPTION	APP'D	CATCH BASIN - INLET TYPE OL		
			2012 EDITION		302



PROTECTION BAR TO BE ALHAMBRA FOUNDRY #A-1565 (GALVANIZED) OR APPROVED EQUAL.

TYPE 'A-2' OR 'D' CURB



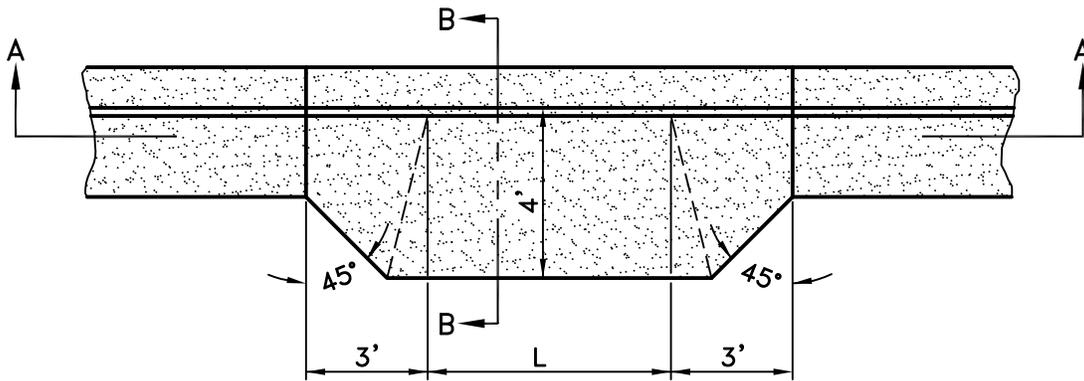
FACE PLATE TO BE ALHAMBRA FOUNDRY #A-3911 (GALVANIZED) OR APPROVED EQUAL.

FACE PLATE DETAIL

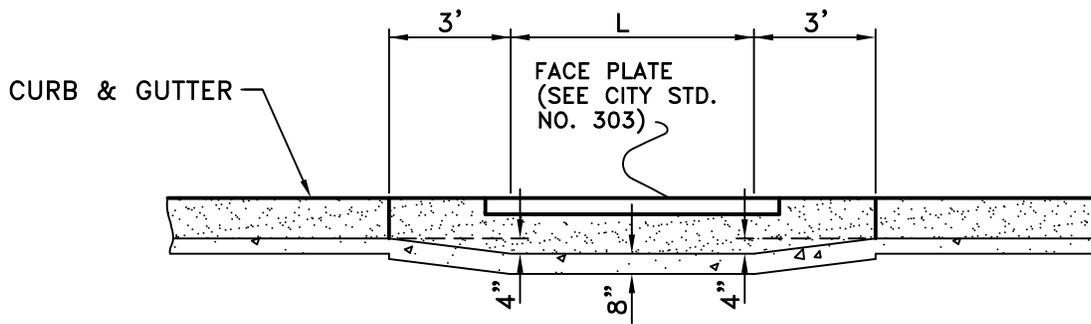
GENERAL NOTES:

1. FOR "T" WALL THICKNESS SEE TABLE ON CITY STD. NO. 301 OR 302.
2. HEIGHT OF CURB OPENING WILL VARY WITH THE TYPE OF CURB AND THE DEPTH OF THE LOCAL DEPRESSION (SEE LOCAL DEPRESSION, CITY STD. NO. 304).
3. REINFORCING STEEL SHALL BE #4 BARS @12" O.C. BOTH WAYS PLACED 1-1/2" CLEAR TO INSIDE OF BOX UNLESS OTHERWISE SHOWN.
4. STEPS—NONE REQUIRED WHERE "H" IS 3'-6" OR LESS, INSTALL ONE STEP 16" ABOVE FLOOR WHEN "H" IS MORE THAN 3'-6" AND LESS THAN 5'-0". WHERE "H" IS MORE THAN 5'-0", STEPS SHALL BE EVENLY SPACED @16" INTERVALS FROM 16" ABOVE FLOOR TO WITHIN 12" OF THE TOP OF THE BOX. PLACE STEPS IN WALL WITHOUT PIPE OPENING.
5. WHEN CURB OPENINGS ARE 7" HIGH OR MORE, PLACE A 3/4" DIAMETER PROTECTION BAR HORIZONTALLY ACROSS THE ENTIRE LENGTH OF THE OPENING AND BEND BACK 4" INTO THE INLET WALL ON EACH SIDE.
6. CURB OPENINGS LONGER THAN 5' SHALL HAVE ONE PROTECTION BAR SUPPORT BOLT EACH 5' INCREMENT OR FRACTION THEREOF, EVENLY SPACED.
7. PIPE(S) CAN BE PLACED IN ANY WALL.
8. CURB SECTION SHALL MATCH ADJACENT CURB.
9. EXCEPT FOR INLETS USED AS JUNCTION BOXES, BASIN FLOORS SHALL HAVE A MINIMUM SLOPE OF 4:1 FROM ALL DIRECTIONS TOWARD OUTLET PIPE AND SHALL HAVE A WOOD TROWEL FINISH.
10. GALVANIZING: ALL EXPOSED METAL SHALL BE GALVANIZED AFTER FABRICATION. NO SCALE

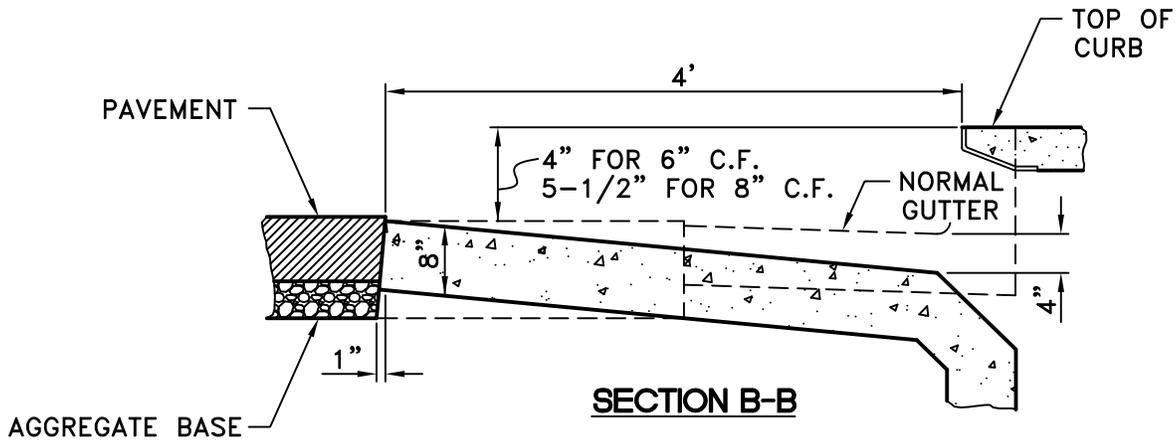
REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			CATCH BASIN DETAILS AND NOTES	303
			2012 EDITION	



PLAN



SECTION A-A



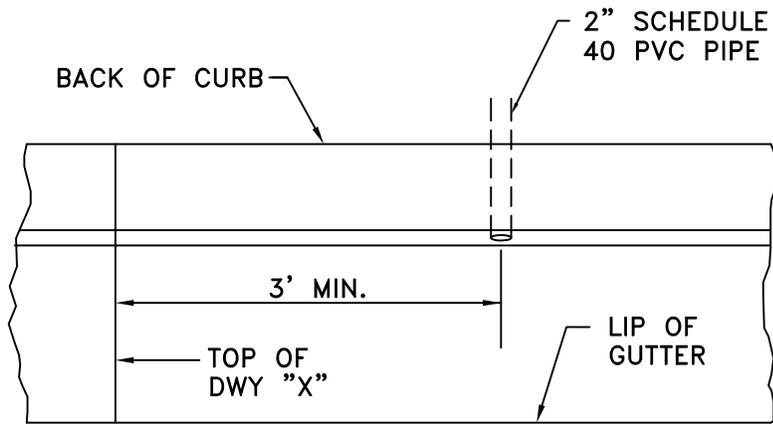
SECTION B-B

NOTES:

1. PCC SHALL BE CLASS 560-C-3250.
2. "L" = LENGTH OF OPENING SHOWN ON THE PLAN.

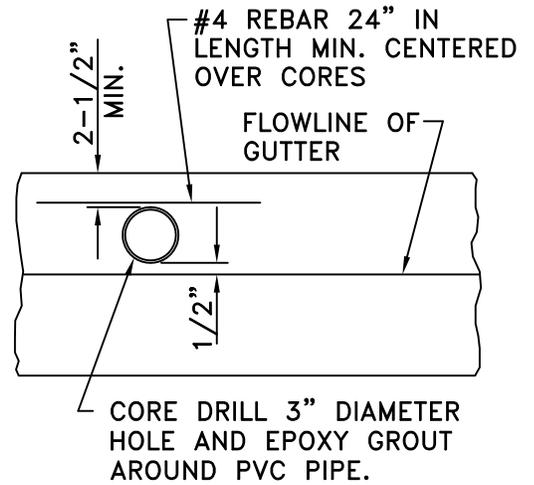
NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			LOCAL DEPRESSION	304



PLAN

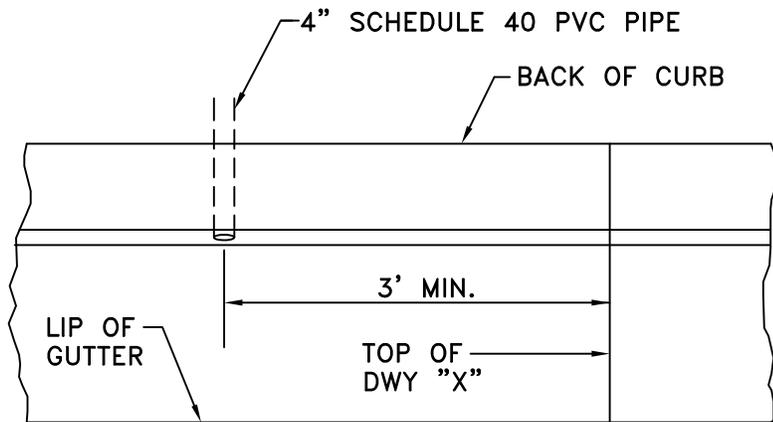
(FOR TYPE 'D' CURB WITH 6" CURB FACE)



ELEVATION

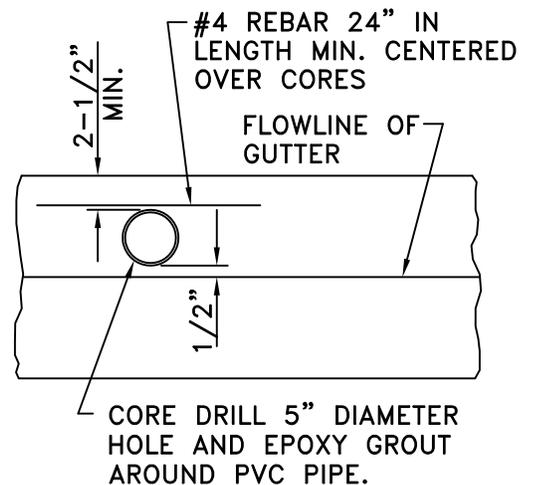
ALTERNATE: SAWCUT AND REMOVE MINIMUM OF 5 LINEAR FEET OF CURB AND GUTTER AS DIRECTED BY THE ENGINEER IN THE FIELD.

POUR NEW CONCRETE CURB AND GUTTER WITH 3" DIAMETER SCHEDULE 40 PVC CAST IN AT SAME DIMENSION SHOWN AT RIGHT.



PLAN

(FOR TYPE 'A-2' CURB WITH 8" CURB FACE)



ELEVATION

ALTERNATE: SAWCUT AND REMOVE MINIMUM OF 5 LINEAR FEET OF CURB AND GUTTER AS DIRECTED BY THE ENGINEER IN THE FIELD.

POUR NEW CONCRETE CURB AND GUTTER WITH 4" DIAMETER SCHEDULE 40 PVC CAST IN AT SAME DIMENSION SHOWN AT RIGHT.

NOTES:

1. IF DRAINING PRIVATE PROPERTY, BUILDING DIVISION APPROVAL IS REQUIRED, AND SHALL ALSO CONFORM WITH ALL BMP REQUIREMENTS.
2. MAXIMUM OF 3 CORES AT 9" O.C. AT ANY LOCATION.

NO SCALE

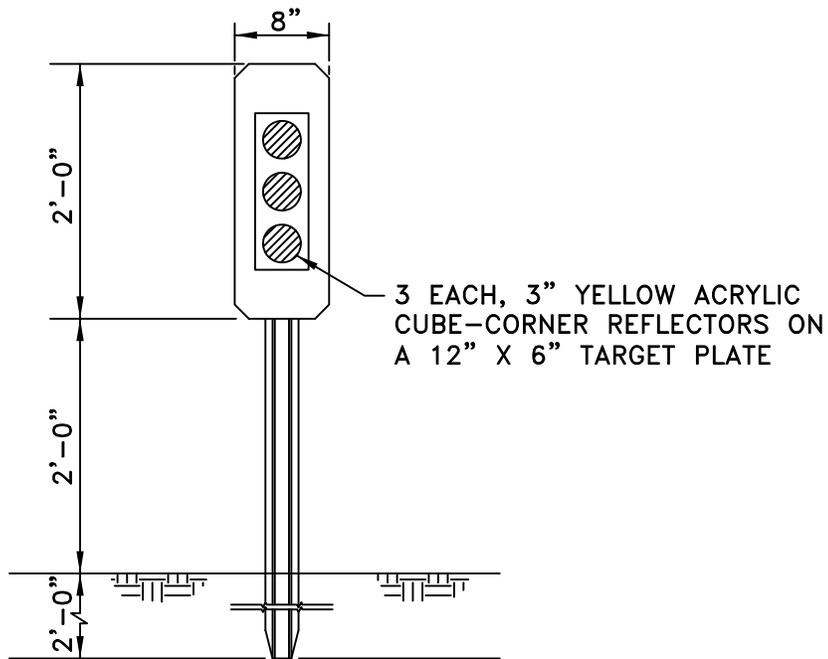
REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			CURB CORE FOR ROOF OR ON-SITE DRAINS	305
2012 EDITION				

SECTION 500

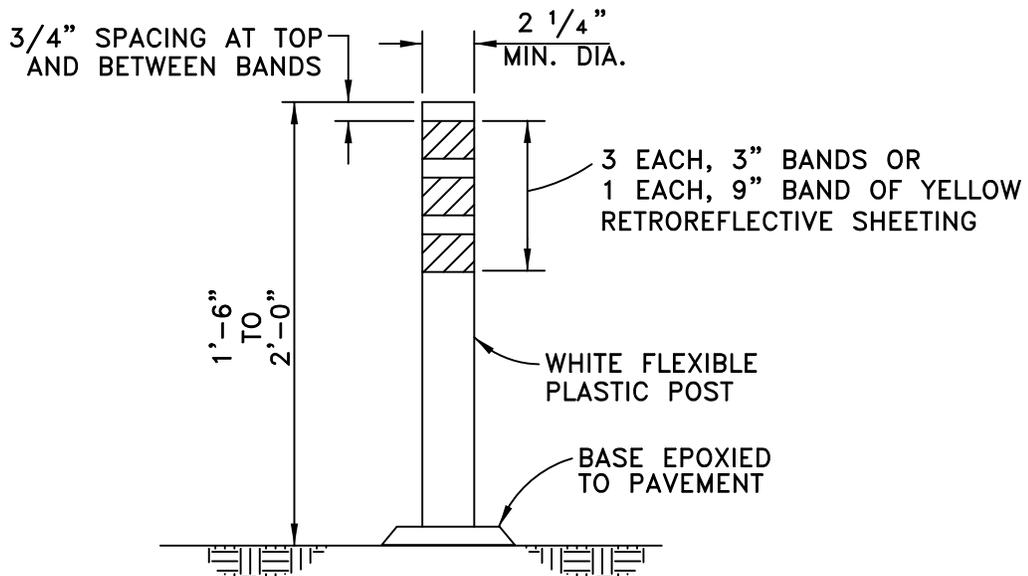
TRAFFIC

DELETED

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	METAL BEAM GUARD RAILING (DEAD END AND WIDENED SECTION SIGNING)	501
			2012 EDITION	



CLEARANCE MARKER
TYPE L-1 (CA) (OM2-2V)
OBSTRUCTIONS ADJACENT TO ROADWAY



ALTERNATE PLASTIC MARKER
TYPE Q (CA)
OBSTRUCTIONS WITHIN ROADWAY

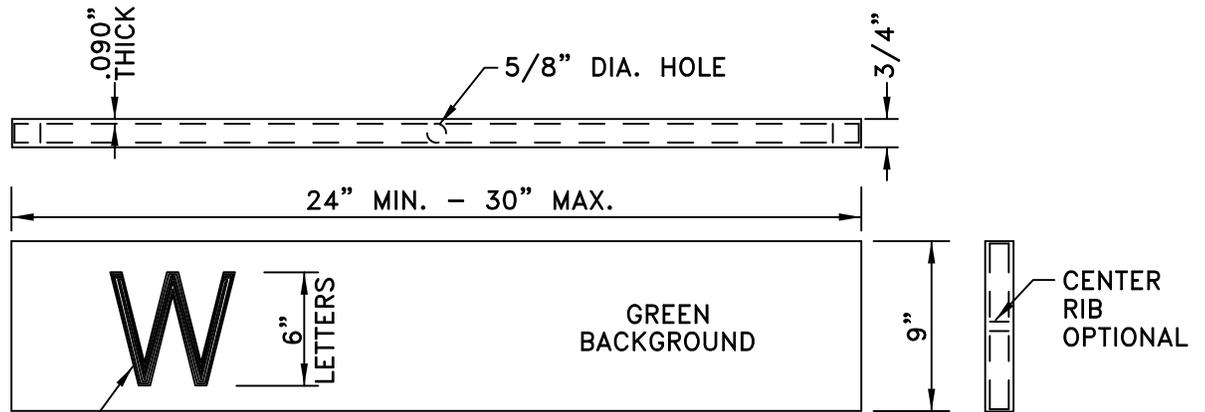
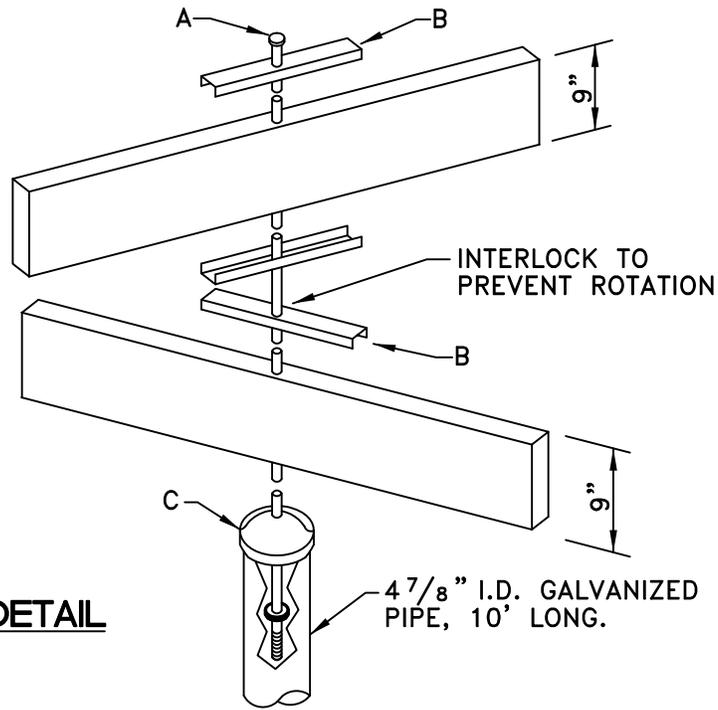
NOTES:

1. PLASTIC MARKERS MAY BE USED WHERE APPROVED BY THE CITY ENGINEER.
2. PLACEMENT OF ALL MARKERS SHALL COMPLY WITH LATEST VERSION OF CA MUTCD.

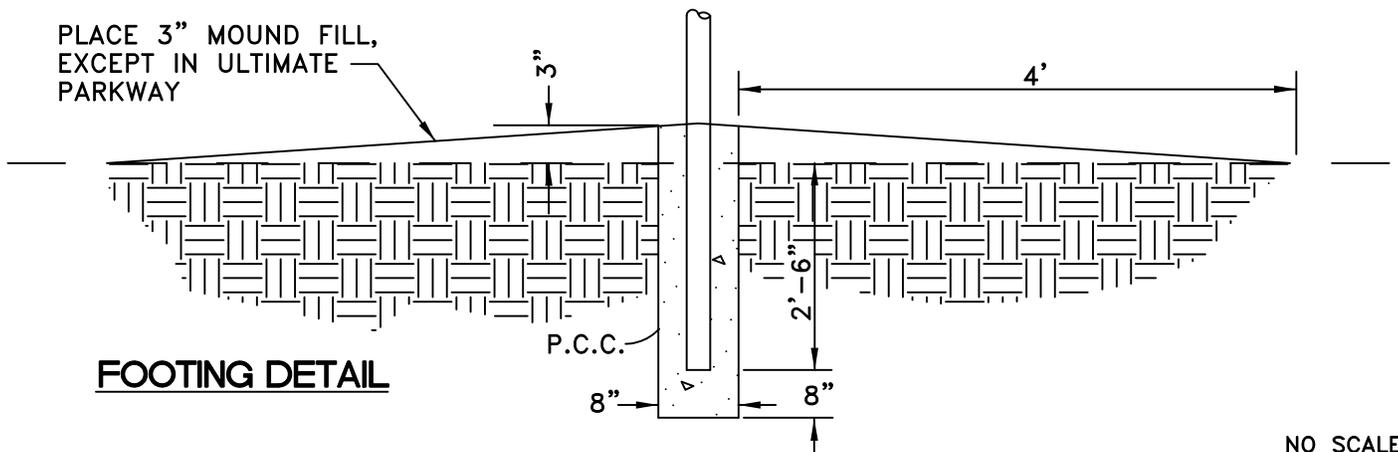
NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			MARKERS	502

HARDWARE DETAIL



STREET NAME SIGN



FOOTING DETAIL

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			STREET NAME SIGN	503

NOTES:

1. EXACT LOCATION OF STREET NAME SIGNS TO BE SHOWN ON IMPROVEMENT PLANS. SEE SHEET 3 OF 3 FOR PLACEMENT CRITERIA.
2. ALUMINUM ALLOY FOR ALL COMPONENTS SHALL CONFORM TO SPECIFICATIONS PUBLISHED BY THE ALUMINUM ASSOCIATION.
 - A. 1/2" X 15" CADMIUM OR ZINC PLATED CARRIAGE BOLT.
 - B. ORNAMENTAL TOP AND CENTER CROSS SADDLE OF ANODIZED ALUMINUM ALLOY 5052H32, 0.075 INCHES THICK OR CAST ANODIZED ALUMINUM CASTING ALLOY A35676.
 - C. CAST ANODIZED ALUMINUM CASTING ALLOY A356T6 POST CAP 2" OR 2 1/2" WITH THREE (3) 3/8" STAINLESS STEEL SET SCREWS.

SIZE:

LENGTH OF SIGN MAY BE 24" OR 30", WIDTH 9" DEPTH 3/4" AND THICKNESS 0.090".

FINISH:

SIGN FACES SHALL BE RETROREFLECTIVE OR ILLUMINATED TO SHOW THE SAME SHAPE AND SIMILAR COLOR BOTH DAY AND NIGHT. THE LEGEND AND BACKGROUND SHALL BE OF CONTRASTING COLORS. THE FINISH SHALL COMPLY WITH LATEST VERSION OF CA MUTCD.

LETTERING:

STREET NAMES SHALL BE 6" HIGH. THE LETTERS SHALL BE OF THE TYPE AND STYLE CONFORMING WITH THE DEPARTMENT OF TRANSPORTATION'S CALIFORNIA SIGN SPECIFICATIONS AND LATEST VERSION OF CA MUTCD.

DESIGN:

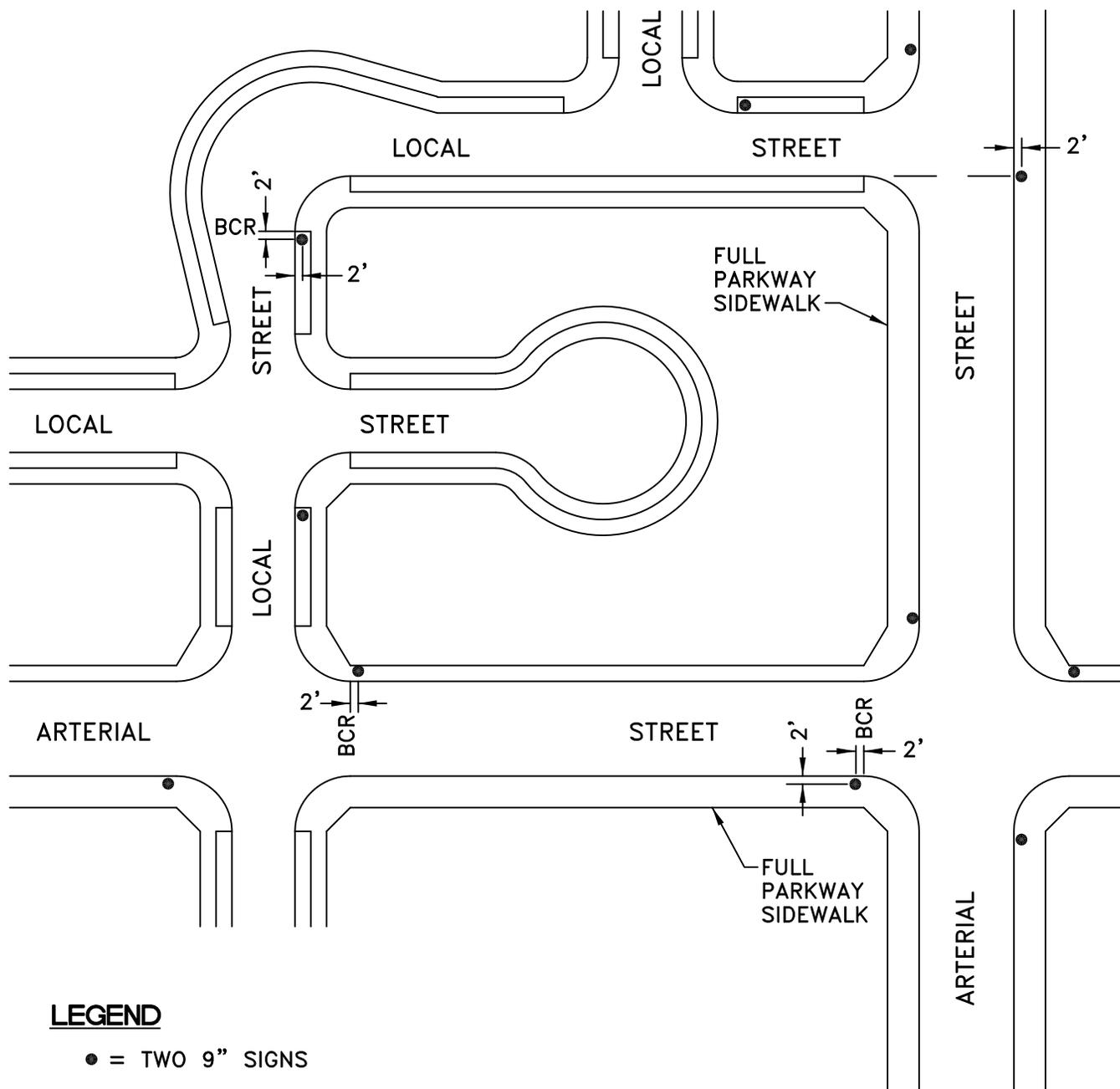
EACH FOUR-WAY UNIT SHALL CONSIST OF TWO DOUBLE FACE SIGNS WITH STREET NAME, MOUNTED AT RIGHT ANGLES WITH CENTER ROD ASSEMBLY. EACH SIGN SHALL BE MADE FROM ONE PIECE OF ALUMINUM EXTRUSION.

BRACKET ASSEMBLY:

THE POST CAP, ORNAMENT AND CENTER ROD ASSEMBLY SHALL BE MADE TO MOUNT ON 2 1/2" I.D. GALVANIZED PIPE. THE CENTER ROD SHALL BE A 1/2" CADMIUM OR ZINC PLATED CARRIAGE BOLT, 0.0002 INCH MINIMUM. HEAD OF BOLT SHALL FORM TOP OF ORNAMENT. BOLT SHALL EXTEND THROUGH SIGNS AND FASTEN WITH NUT INSIDE OF POST CAP. POST CAP SHALL BE CAST ANODIZED ALUMINUM, DEEPLY GROOVED TO SECURELY HOLD SIGN FROM TWISTING, AND SHALL BE SECURED TO THE PIPE WITH THREE (3) 1/2" ALLEN HEAD SET SCREWS. SADDLE SHALL BE ANODIZED ALUMINUM ALLOY 5052H32, 0.075 INCHES THICK.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO. 503
DATE	DESCRIPTION	APP'D	STREET NAME SIGN SPECIFICATIONS	
			2012 EDITION	



LEGEND

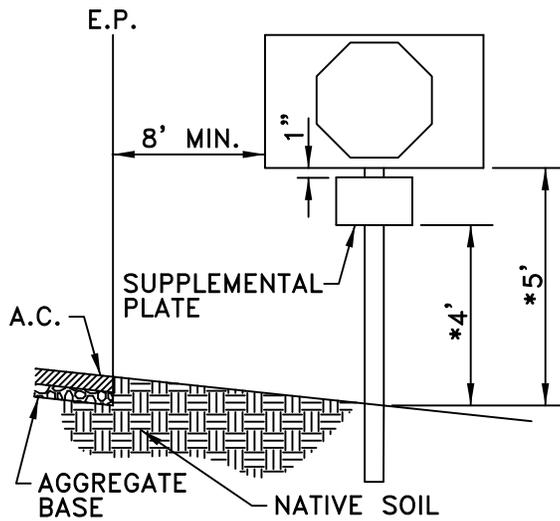
● = TWO 9" SIGNS

NOTES:

1. STREET NAME SIGNS SHALL BE PLACED AT THE NEAR RIGHT APPROACH OF MAJOR TRAFFIC FLOW.
2. ONE SIGN SHALL BE PLACED AT THE INTERSECTION OF TWO LOCAL STREETS.
3. TWO SIGNS SHALL BE PLACED AT THE INTERSECTION OF AN ARTERIAL STREET WITH A LOCAL STREET.
4. FOUR SIGNS SHALL BE PLACED AT A NON-SIGNALIZED INTERSECTION OF TWO ARTERIAL STREETS. SIGNS SHALL NOT BE INSTALLED AT SIGNALIZED INTERSECTIONS WITH INTERNALLY ILLUMINATED STREET NAME SIGNS.

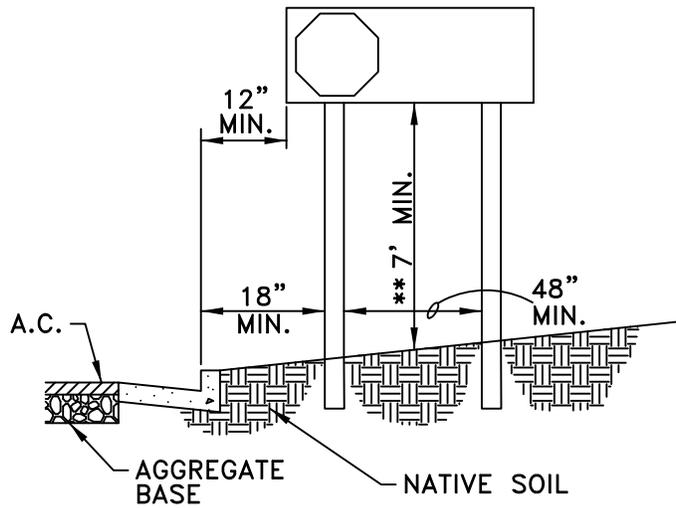
NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS		STD. NO. 503
DATE	DESCRIPTION	APP'D	STREET NAME SIGN PLACEMENT		
			2012 EDITION		



SHOULDER LOCATIONS

*SEE NOTE 2.



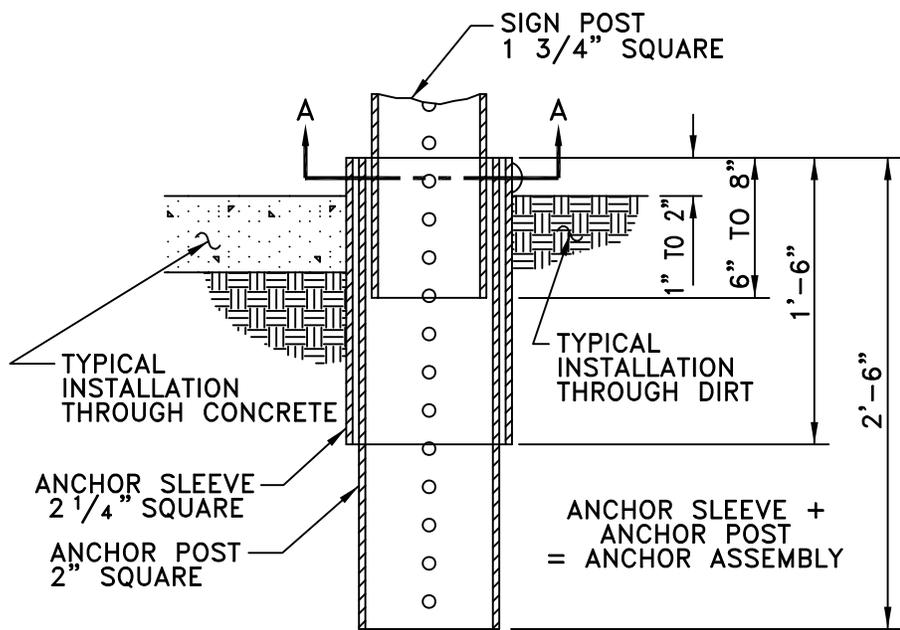
PARKWAY LOCATIONS

NOTES:

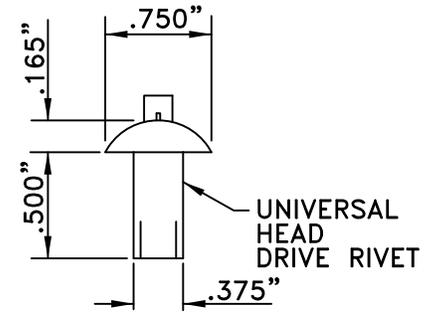
1. SEE SHOULDER AND PARKWAY LOCATION DETAILS FOR STANDARD MOUNTING HEIGHTS. EXCEPTIONS SHOULD BE MADE TO AVOID SIGHT RESTRICTIONS OR UNDESIRABLE CONDITIONS, AT THE DIRECTION OF THE ENGINEER.
2. WHEN SUPPLEMENTAL PLATE IS USED, THE 4' MOUNTING HEIGHT SHALL SUPERCEDE THE 5' MOUNTING HEIGHT AT SHOULDER LOCATIONS.
3. PARKWAY AND SHOULDER SIGNS HAVING A HORIZONTAL WIDTH OF 48" OR GREATER SHALL BE DUAL-POST MOUNTED. SIGNS LESS THAN 48" IN WIDTH SHALL BE MOUNTED ON A SINGLE POSTS. POST(S) SHALL BE GALVANIZED STEEL, EASY ERECT BREAKAWAY, OR SQUARE STEEL TUBING WITH BREAKAWAY BASE, "QUICKPUNCH", "UNISTRUT", OR APPROVED EQUAL, EXCEPT WHEN MOUNTED ON SAME POST AS STREET NAME SIGN.
4. SIZING OF R1 ("STOP") SIGNS:
 - 24" - LOCAL TO LOCAL INTERSECTION WITH LOW APPROACH SPEED AND GOOD VISIBILITY
 - 30" - STANDARD SIZE.
 - 36" - WHERE THE APPROACH WIDTH IS GREATER THAN 30'. DUAL SIGNS SHALL BE USED WHERE THERE IS A RAISED MEDIAN AND APPROACH WIDTH IS GREATER THAN 30'.
 - 48" - WHERE THE ENGINEER DETERMINES THERE IS A DEMONSTRATED OR POTENTIAL ACCIDENT PROBLEM.
5. ** 8' MINIMUM IF DESIGNATED BIKE TRAIL.

NO SCALE

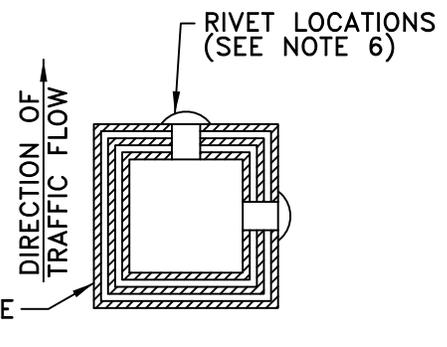
REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS		STD. NO. 504
DATE	DESCRIPTION	APP'D	TRAFFIC SIGN PLACEMENT		
			2012 EDITION		



TYPICAL SECTION



RIVET DETAIL



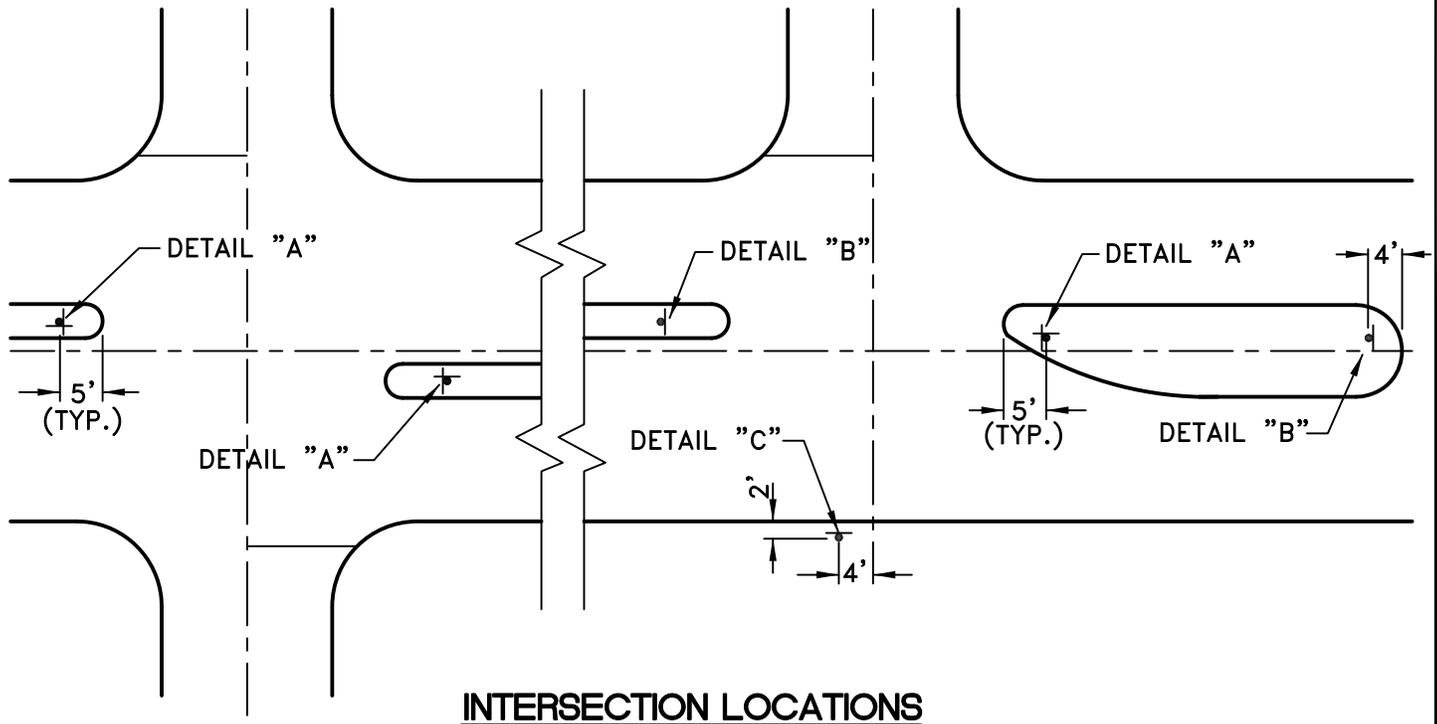
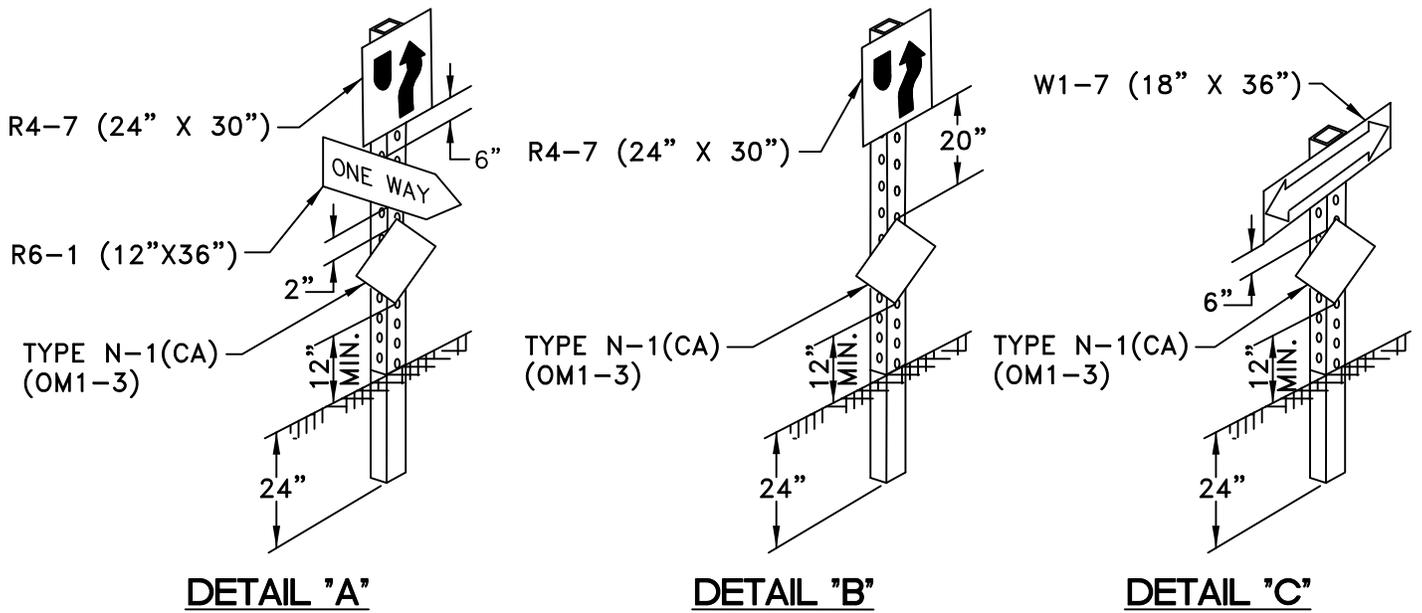
SECTION A-A

NOTES:

1. SQUARE PERFORATED STEEL TUBE POSTS WITH BREAK-AWAY BASE. "TELESPAR", "QUICKPUNCH", OR "UNISTRUT", OR APPROVED BY CITY ENGINEER EQUAL, SHALL BE USED FOR ALL TRAFFIC CONTROL AND INFORMATIONAL SIGNS WITHIN ROAD RIGHT-OF-WAY, WITH THE EXCEPTION OF STREET NAME SIGNS PER CITY STANDARD PLAN NO. 503.
2. THE NUMBER OF POSTS REQUIRED FOR SIGN INSTALLATION SHALL BE DETERMINED BY THE AREA OF THE SIGN OR COMBINATION OF SIGNS TO BE INSTALLED. A SINGLE POST SHALL BE USED WHERE BOTH THE LENGTH AND WIDTH ARE LESS THAN 48", WITH THE EXCEPTION OF A 48" x 48" STOP SIGN. DOUBLE POSTS SHALL BE USED WHERE EITHER THE LENGTH OR THE WIDTH EXCEEDS 48".
3. THE ANCHOR ASSEMBLY SHALL CONSIST OF A 2" SQUARE BY 2'-6" ANCHOR POST AND A 2 1/4" SQUARE BY 1'-6" ANCHOR SLEEVE.
4. THE ANCHOR ASSEMBLY, CONSISTING OF THE ANCHOR POST AND ANCHOR SLEEVE, SHALL BE DRIVEN SIMULTANEOUSLY UNTIL ONLY 1" TO 2" REMAINS ABOVE GROUND LEVEL. THE TOPS OF BOTH PIECES SHALL BE FLUSH.
5. ALL DIRT SHALL BE REMOVED FROM THE INSIDE TOP 8" OF THE ANCHOR ASSEMBLY TO ALLOW FOR INSTALLATION OF THE SIGN POST.
6. INSTALL THE 1 3/4" SQUARE SIGN POST 6" TO 8" INTO THE ANCHOR ASSEMBLY AND SECURE IN PLACE WITH TWO 5/16" UNIVERSAL HEAD DRIVE RIVETS AS SHOWN. THE RIVETS SHALL BE INSTALLED ON THE SIDE OPPOSITE TRAFFIC FLOW AND THE SIDE AWAY FROM TRAFFIC AS SHOWN IN ORDER TO ACHIEVE THE MAXIMUM BREAK-AWAY EFFECT.
7. INSTALLATION ACCORDING TO THESE REQUIREMENTS IS ESSENTIAL TO MAINTAIN THE BREAK-AWAY CHARACTERISTICS OF THE POST SYSTEM. UNDER NO CIRCUMSTANCES SHALL THE ANCHOR ASSEMBLY BE SECURED IN CONCRETE FOOTINGS.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			SIGN POST INSTALLATION	505
			2012 EDITION	

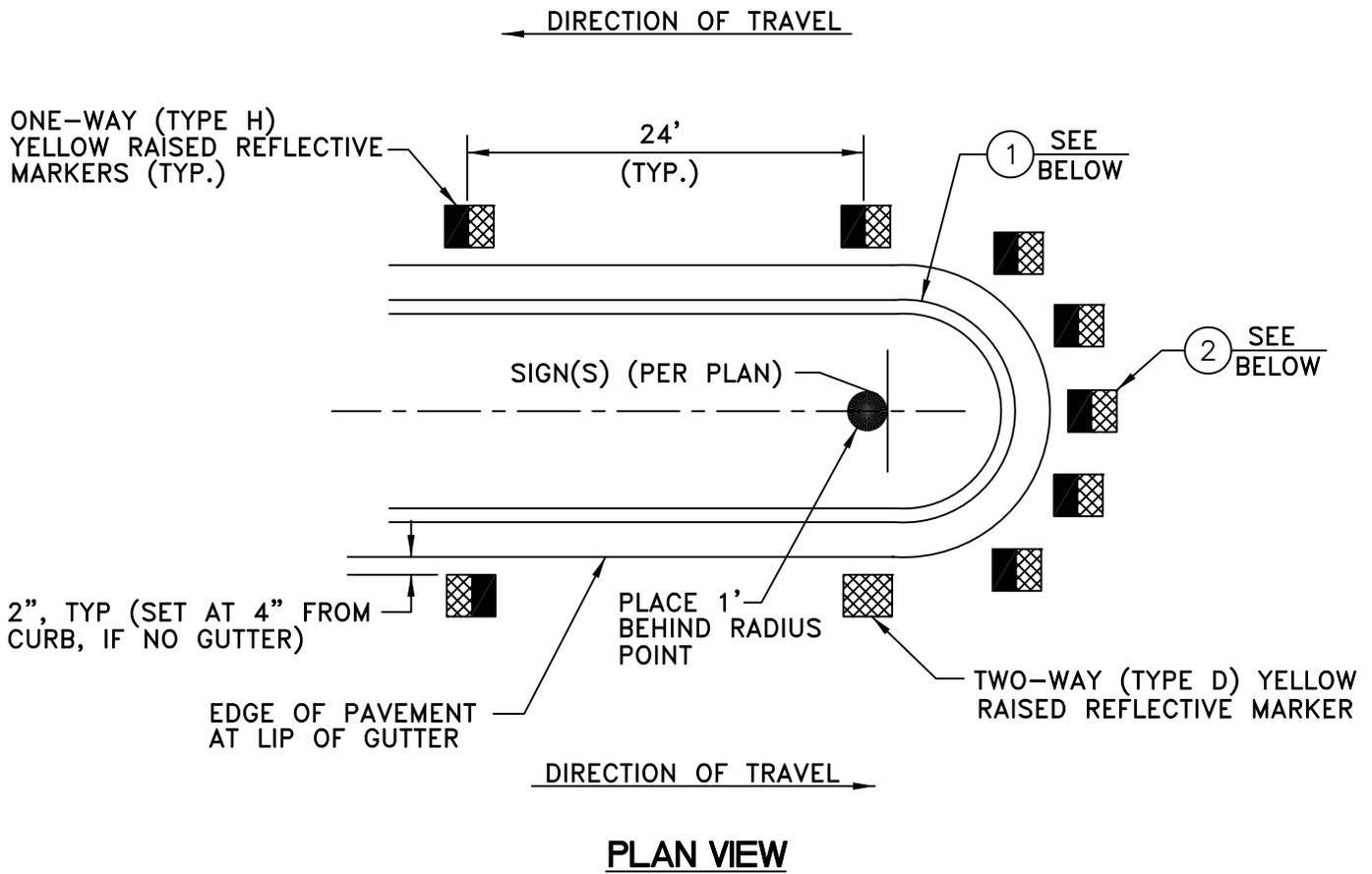


NOTE:

SEE THE LATEST CA MUTCD FOR SIGN SPECIFICATIONS AND DETAILS. SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE NOTED. R4-7, R6-1, W1-7 AND TYPE N-1(CA) (OM1-3) SIGN FACES SHALL BE RETROREFLECTIVE TO SHOW THE SAME SHAPE AND SIMILAR COLOR BOTH DAY AND NIGHT. THE LEGEND AND BACKGROUND SHALL BE OF CONTRASTING COLORS. THE FINISH SHALL COMPLY WITH LATEST VERSION OF CA MUTCD. POSTS SHALL BE SQUARE GALVANIZED STEEL TUBING WITH BREAKAWAY BASE, "TELESPAR", "QUICKPUNCH", OR "UNISTRUT", OR APPROVED EQUAL. (SEE STD. NO. 505)

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			MEDIAN SIGNING AT INTERSECTIONS	506
			2012 EDITION	

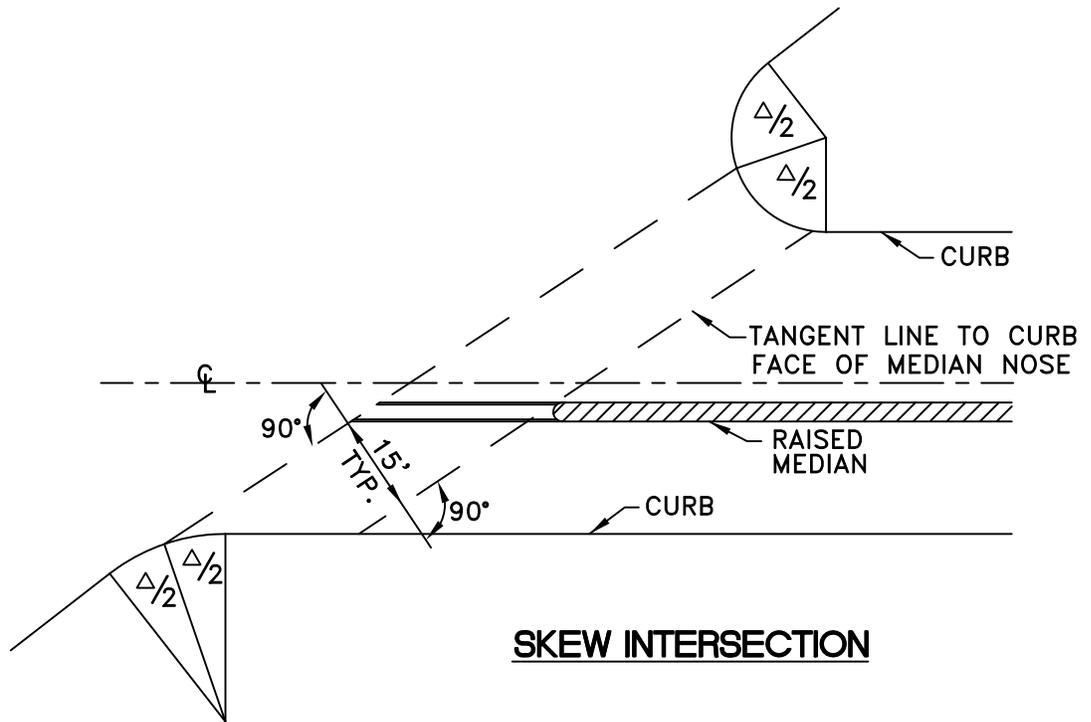
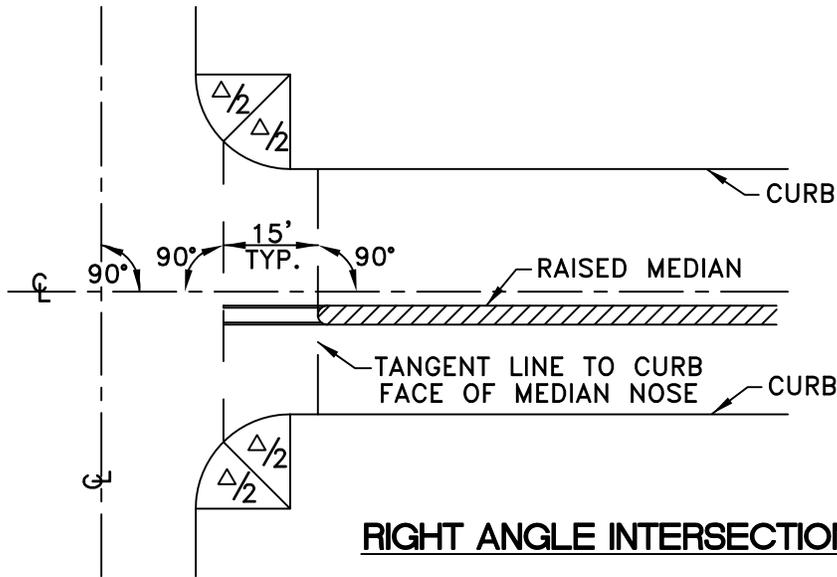


NOTES:

- ① PAINT MEDIAN NOSE WITH HIGH REFLECTIVITY PREMIXED WHITE TRAFFIC PAINT.
- ② INSTALL YELLOW REFLECTIVE PAVEMENT MARKERS ON PAVEMENT SURFACE IN FRONT OF MEDIAN CURB NOSE AT MINIMUM 2' CENTER TO CENTER SPACING (MINIMUM 5 MARKERS). PLACE REFLECTIVE SURFACE OF MARKERS PARALLEL TO ϕ OF INTERSECTING ROADWAY.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO. 507
DATE	DESCRIPTION	APP'D	RAISED MEDIAN MARKING DETAIL	
			2012 EDITION	

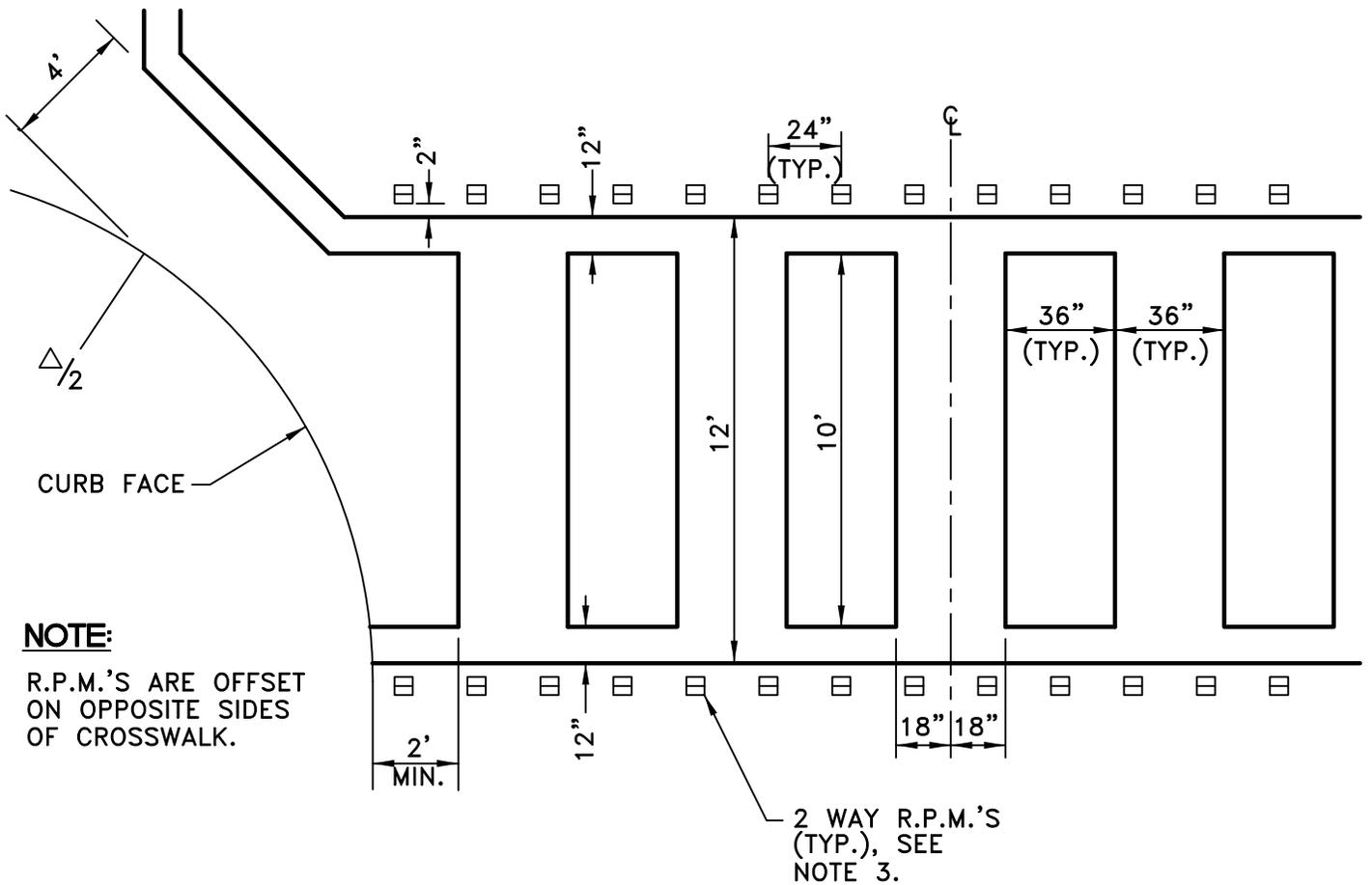


NOTES:

1. PAINT DOUBLE YELLOW STRIPING FROM MEDIAN NOSE TO BACK OF CROSSWALK OR TO $\Delta/2$ IF NO CROSSWALK.
2. FOR CROSSWALK DETAILS, SEE STANDARD PLAN NO. 509.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS		STD. NO. 508
DATE	DESCRIPTION	APP'D	RAISED MEDIAN NOSE LOCATION		
			2012 EDITION		



NOTES:

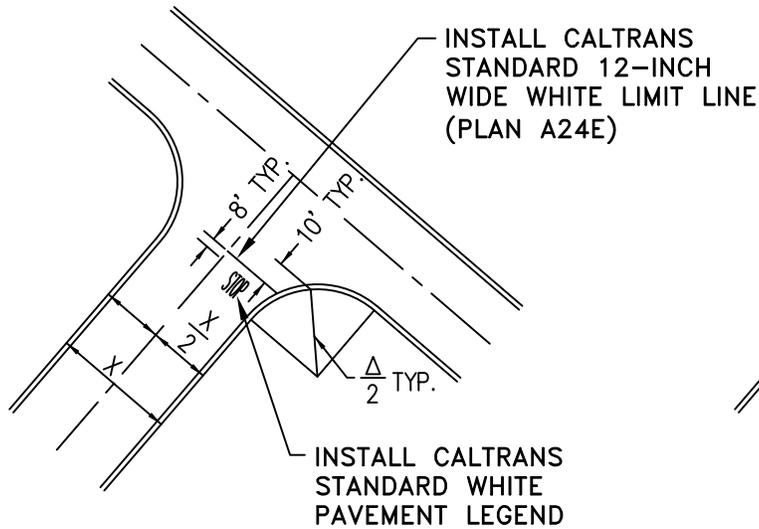
1. STANDARD 10' CROSSWALKS CONSISTS OF TWO PARALLEL 12-INCH WIDE WHITE LINES (YELLOW FOR SCHOOL DESIGNATED CROSSWALK).
2. LADDER BARS SHOULD BE USED ONLY WHERE ADDED VISIBILITY IS NEEDED SUCH AS AT SCHOOL ZONES, MIDBLOCK, OR AN UNCONTROLLED INTERSECTION AS DETERMINED BY THE CITY ENGINEER.
3. TWO WAY REFLECTIVE RAISED PAVEMENT MARKERS (R.P.M.) MAY BE USED TO SUPPLEMENT LADDER BAR STRIPES WHERE ADDITIONAL VISIBILITY IS NEEDED, AS DETERMINED BY THE CITY ENGINEER. USE CLEAR TYPE 'B' R.P.M.'S FOR A WHITE CROSSWALK, AND YELLOW TYPE 'D' R.P.M.'S FOR A YELLOW CROSSWALK.
4. INTENT OF LONGITUDINAL SPACING OF LADDER BARS IS TO PLACE THEM ALONG LANE LINES AND IN THE CENTER OF LANES TO AVOID VEHICLE WHEEL PATHS. LADDER BARS SHALL BE CONTINUED ACROSS THE ENTIRE ROADWAY WIDTH, WITH THE LAST FULL BAR (NO PARTIAL BARS) AT LEAST 2' FROM THE CURB FACE.
5. AT SKEWED INTERSECTIONS, THE LADDER BAR SHALL BE PARALLEL TO THE LANE LINES, NOT PERPENDICULAR TO THE CROSSWALK LINES.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			CROSSWALK DETAIL	509

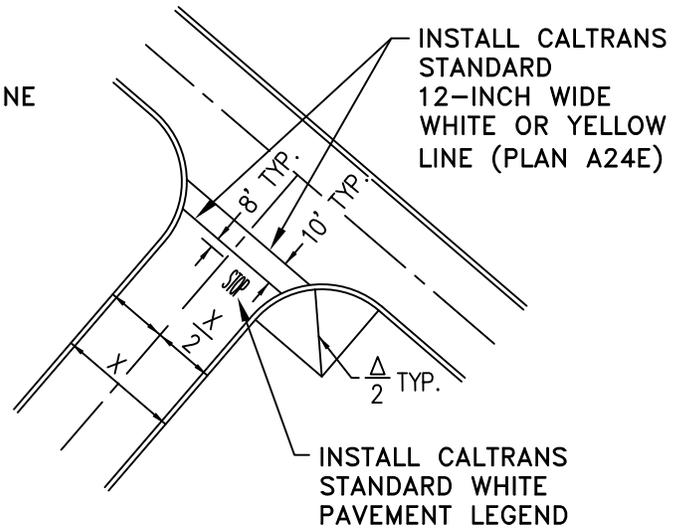
DELETED

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS		STD. NO.
DATE	DESCRIPTION	APP'D	INTERSECTION SIGHT DISTANCE		
					510
			APP'D	CITY ENGINEER	DATE:



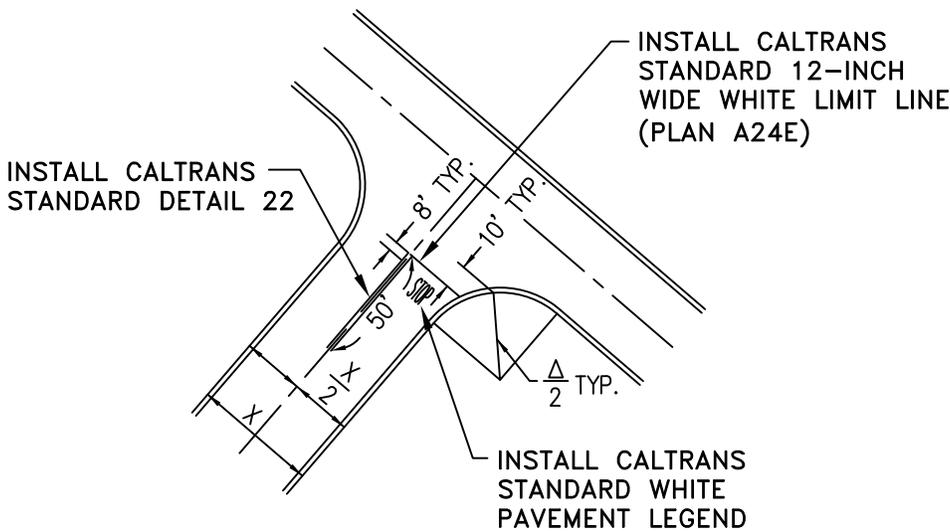
**TYPICAL STOP AND LIMIT
LINE TREATMENT**

TYPE A



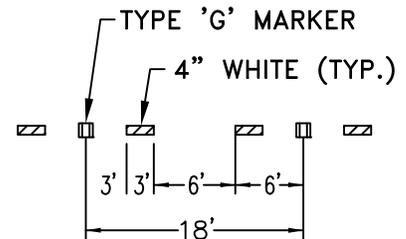
**TYPICAL STOP AND CROSSWALK
TREATMENT**

TYPE B



**TYPICAL STOP AND LIMIT LINE WITH 50 FOOT
DOUBLE YELLOW CENTERLINE**

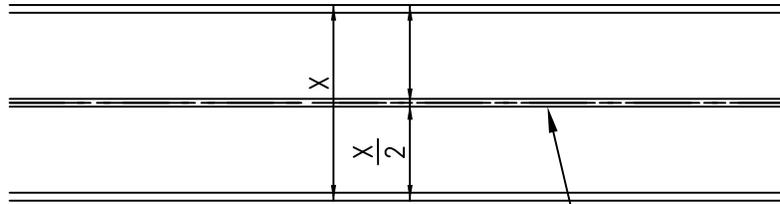
TYPE C



**LANE LINE EXTENSION
THROUGH INTERSECTION**

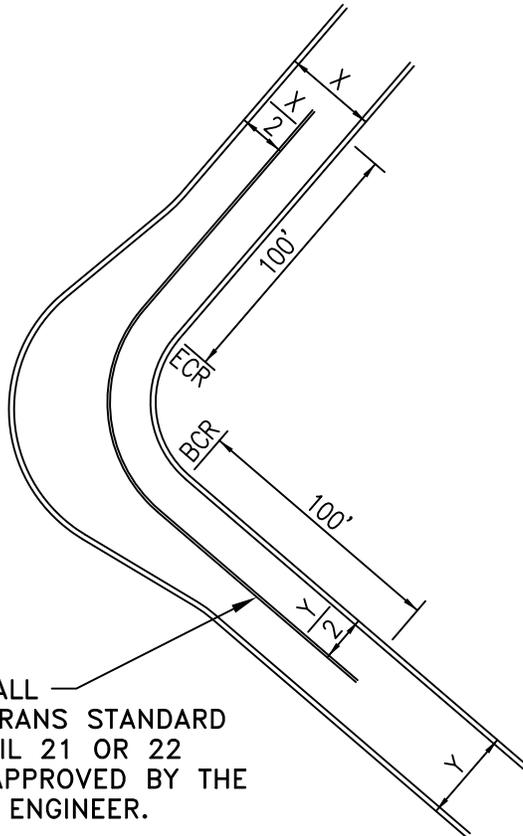
NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			TYPICAL INTERSECTION MARKINGS	511
			2012 EDITION	



**TYPICAL TWO-WAY
ROADWAY TREATMENT
TYPE A**

INSTALL
CALTRANS STANDARD
DETAIL 21 OR 22
AS APPROVED BY THE
CITY ENGINEER.

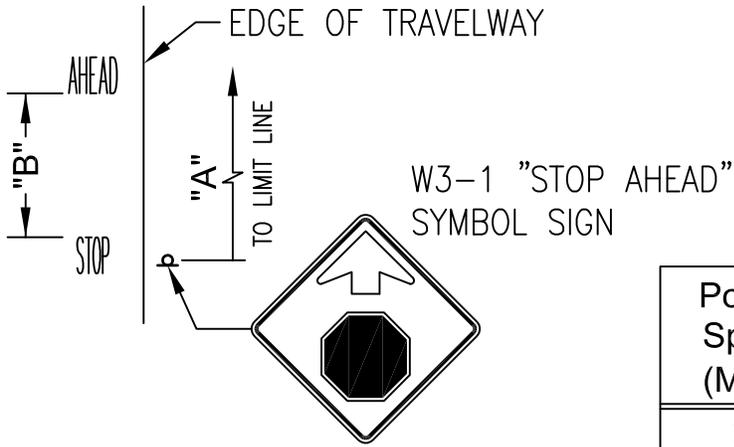


INSTALL
CALTRANS STANDARD
DETAIL 21 OR 22
AS APPROVED BY THE
CITY ENGINEER.

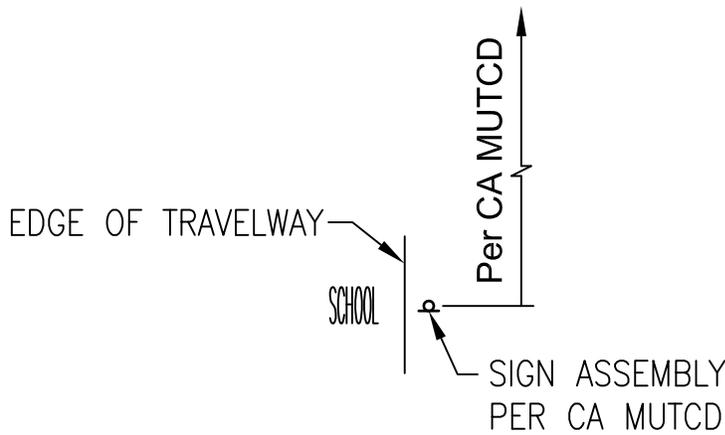
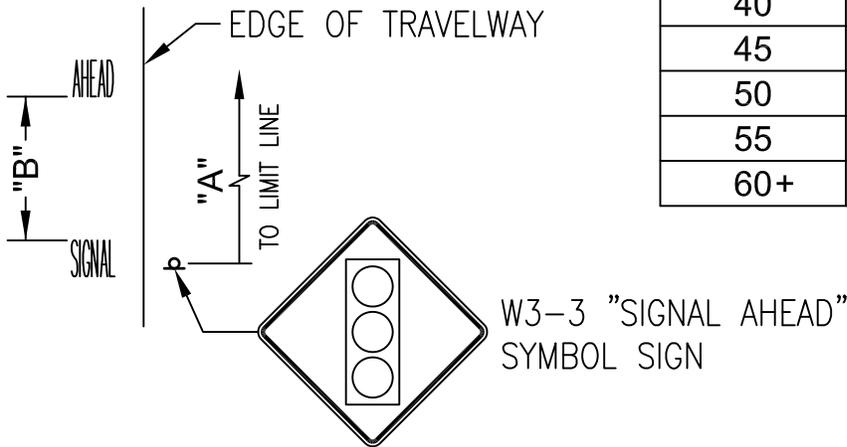
**TYPICAL ROADWAY
KNUCKLE TREATMENT
TYPE B**

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			TYPICAL CENTERLINE MARKINGS FOR LOCAL ROADWAYS	512



Posted Speed (MPH)	Recommended Distance	
	"A"	"B"
25	150'	32'
30	200'	
35	225'	
40	250'	40'
45	275'	50'
50	300'	
55	350'	
60+	500'	60'



NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			TYPICAL TREATMENT OF PAVEMENT MARKINGS	513
			2012 EDITION	

SECTIONS 1000, 1100 & 1200

WATER

SECTION 1000

DOMESTIC WATER SYSTEM

NOTE:

SOLDERED JOINTS WILL NOT BE ALLOWED BETWEEN WATER MAIN AND WATER METER.

FURNISH AND INSTALL 12" X 20" ARMORCAST COMPOSITE POLYMER CONCRETE BOX WITH TWO PIECE LID OR APPROVED EQUAL. METER BOX SHALL HAVE TRAFFIC WEIGHT COVER IF EXPOSED TO TRAFFIC.

TUNNEL UNDER EXISTING CONCRETE CURB AND/OR GUTTER. PLACE ONE (1) SACK SLURRY BACKFILL IF NOT TUNNELED.

TRENCH BACKFILL SHALL BE PER CITY STD. 108

3/4" & 1" METER PROVIDED AND SET BY CITY (SEE PERMIT)

FURNISH & INSTALL 1" BRONZE STD. METER COUPLING. J-134 OR APPROVED EQUAL.

3" MIN. PEA GRAVEL

FURNISH AND INSTALL 1" BRONZE ANGLE STOP JONES J-1963W OR APPROVED EQUAL. 3/4" METER SHALL HAVE BRONZE BUSHING J-128H.

FURNISH AND INSTALL 1" TYPE "K" SOFT COPPER

FURNISH AND INSTALL 1" BRONZE MIP CORP. STOP, JONES J-41 WITH J-2607 BRONZE COMPRESSION CONNECTION OR APPROVED EQUAL.

ON ACP OR DIP WATER MAIN FURNISH AND INSTALL DOUBLE STRAP BRONZE SADDLE WITH IP THREADS, JONES J-979 OR APPROVED EQUAL. ON C-900 WATER MAIN FURNISH AND INSTALL DOUBLE STRAP BRONZE SADDLE WITH IP THREADS, JONES J-969 OR APPROVED EQUAL.

12"

36" MINIMUM

42" MINIMUM

MAX 60°
MIN 15°

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS		STD. NO.
DATE	DESCRIPTION	APP'D	1" WATER SERVICE		
			2012 EDITION		1001

NOTE:

SOLDERED JOINTS WILL NOT BE ALLOWED BETWEEN WATER MAIN AND WATER METER.

FURNISH AND INSTALL 17" X 30" ARMORCAST COMPOSITE POLYMER CONCRETE BOX WITH TWO PIECE LID OR APPROVED EQUAL. METER BOX SHALL HAVE TRAFFIC WEIGHT COVER IF EXPOSED TO TRAFFIC.

TUNNEL UNDER EXIST CONCRETE CURB AND/OR GUTTER. PLACE ONE (1) SACK SLURRY BACKFILL IF NOT TUNNELLED.

TRENCH BACKFILL SHALL BE PER CITY STD. 108

1-1/2" & 2" METER PROVIDED BY CITY AND SET BY DEVELOPER

FURNISH & INSTALL JONES J-1913 OR J-1941 BRONZE BALL VALVE WITH LEVER HANDLE, OR APPROVED EQUAL.

3" MIN. PEA GRAVEL

FURNISH AND INSTALL 1-1/2" OR 2" BRONZE ANGLE STOP JONES J-4205 OR APPROVED EQUAL.

FURNISH AND INSTALL 1-1/2" OR 2" TYPE "K" SOFT COPPER.

90° COMPRESSION COUPLING REQUIRED FOR 2" SERVICE

12"

12"

36" MINIMUM

42" MINIMUM

EXISTING WATER MAIN

FURNISH AND INSTALL 1-1/2" OR 2" BRONZE MIP CORP. STOP JONES J-1943 WITH J-2607 BRONZE COMPRESSOR CONNECTION OR APPROVED EQUAL.

ON ACP OR DIP WATER MAIN FURNISH AND INSTALL DOUBLE STRAP BRONZE SADDLE WITH IP THREADS JONES J-979 OR APPROVED EQUAL; ON C-900 WATER MAIN FURNISH AND INSTALL DOUBLE STRAP BRONZE SADDLE WITH IP THREADS JONES J-969 OR APPROVED EQUAL.

NO SCALE

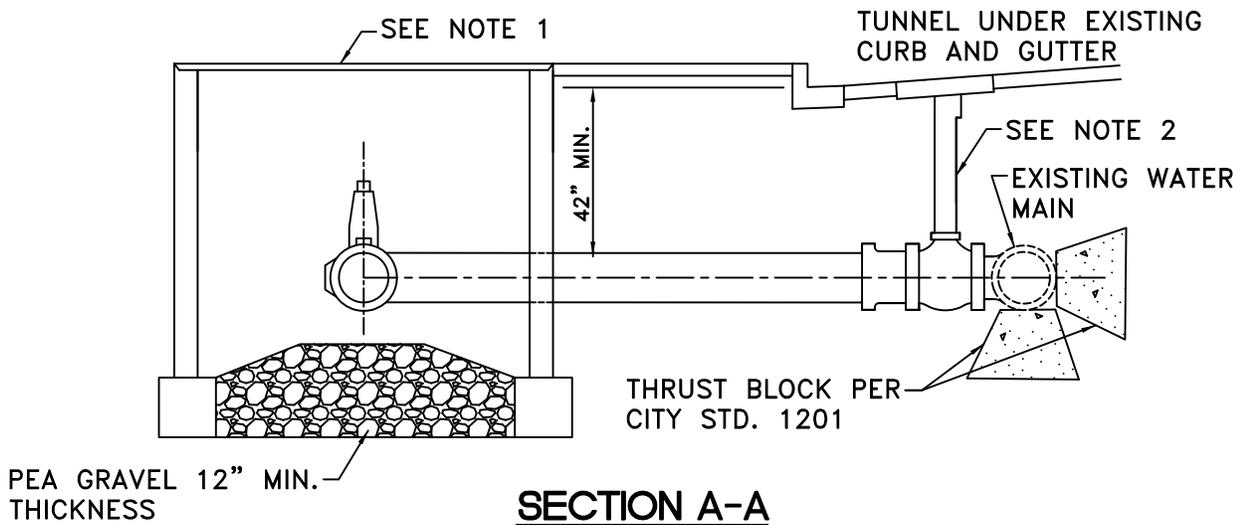
REVISIONS		
DATE	DESCRIPTION	APP'D

CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS

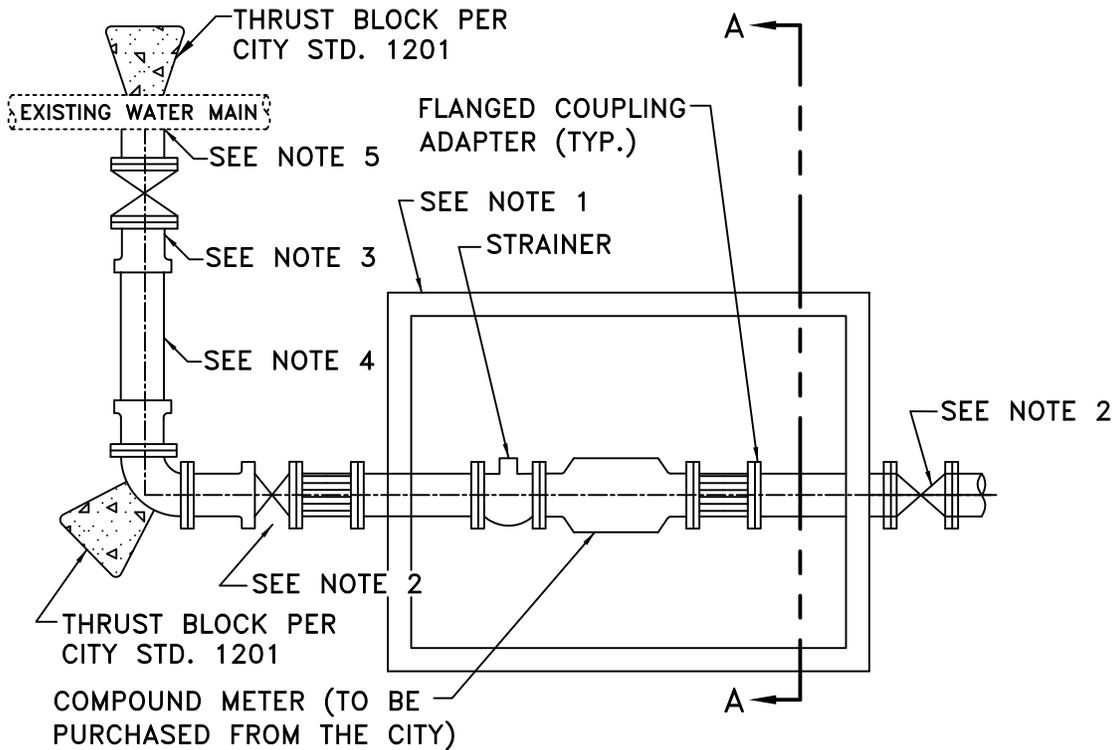
1-1/2" OR 2" WATER SERVICE

2012 EDITION

STD. NO. 1002



SECTION A-A



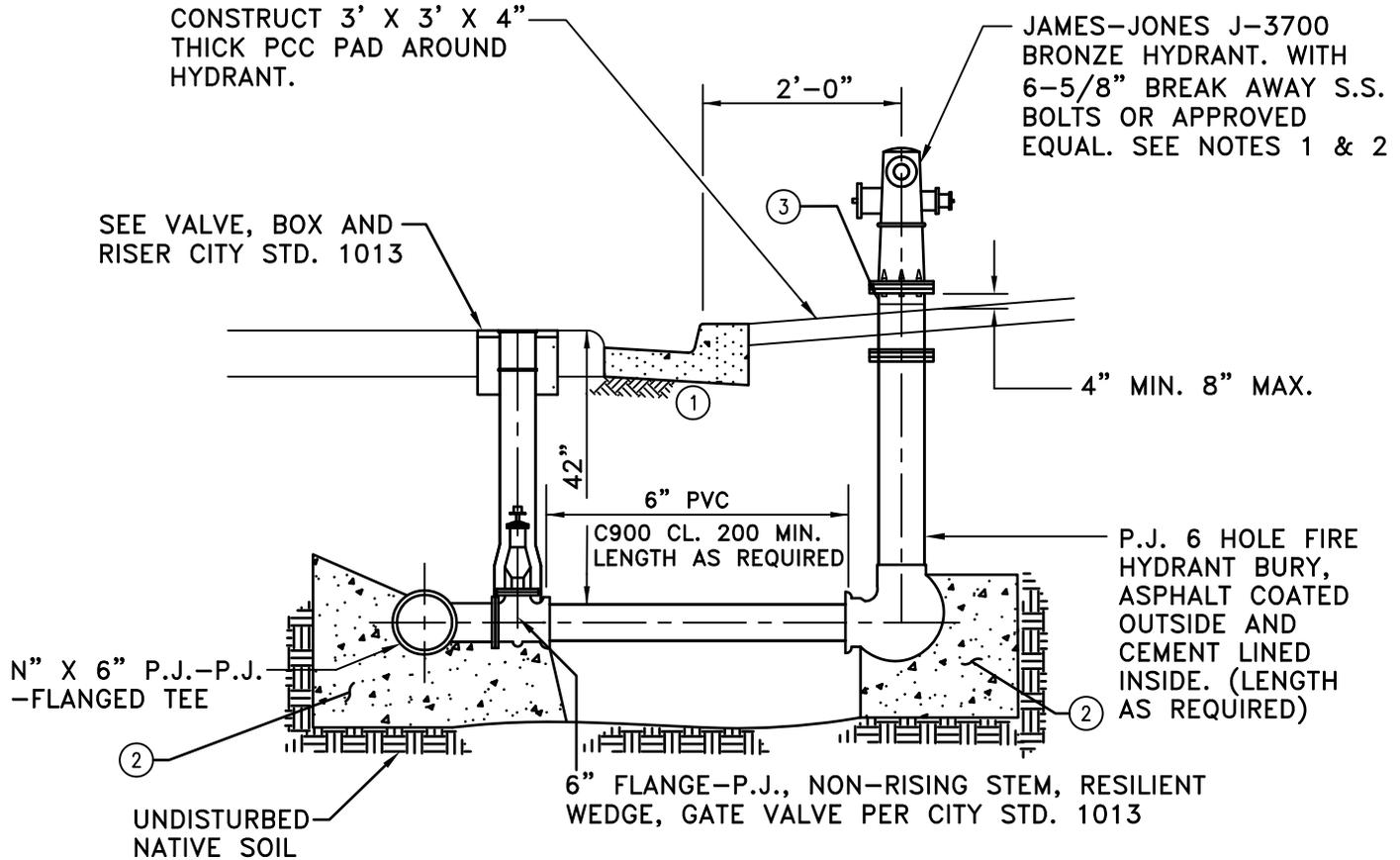
PLAN

CONSTRUCTION NOTES:

1. FOR 3", 4" & 6" METER USE AMORCAST MODEL (A600 1506TAP 48MT) METER VAULT, FOR 8" METER USE AMORCAST MODEL (A600 1448TAP 48MT) METER VAULT.
2. VALVE, BOX & RISER PER CITY STD. 1013
3. DUCTILE IRON FLANGE x R.T. ADAPTER
4. FOR 3" & 4" METER USE 4" AWWA C-900 PVC, FOR 6" & 8" USE 8" AWWA C-900 PVC.
5. HOT TAP EXISTING WATER MAIN PER CITY STD. 1005

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			3", 4", 6", AND 8" WATER SERVICE	1003



CONSTRUCTION NOTES:

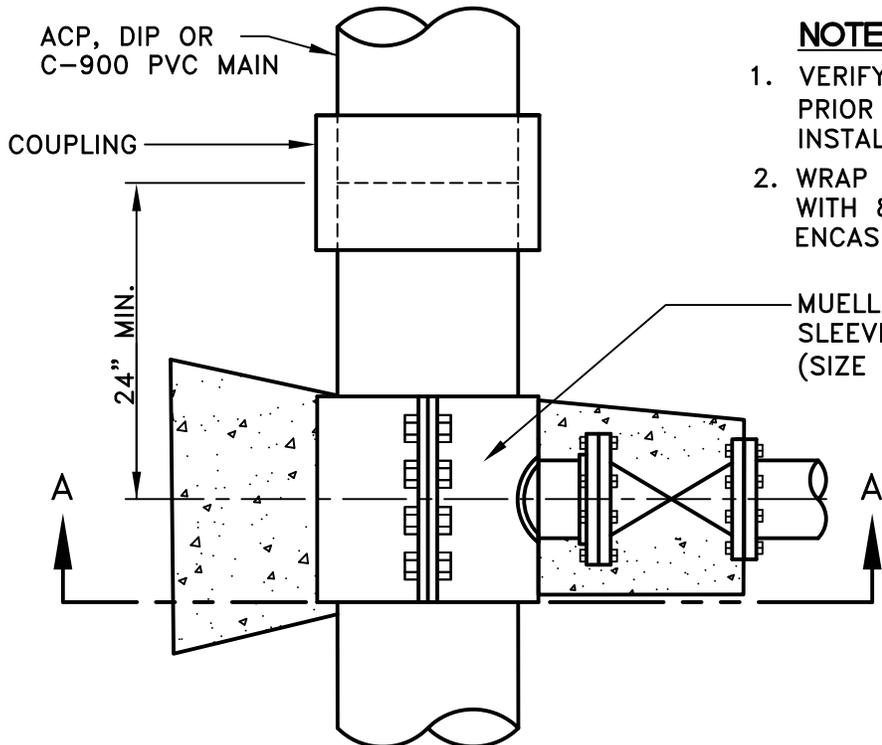
- ① ONE (1) SACK SLURRY BACKFILL UNDER EXISTING CURB AND/OR GUTTER.
- ② THRUST BLOCKS AND ANCHORS SHALL BE PER CITY STD. 1201.
- ③ 12" MIN, 24" MAX LENGTH SINGLE SCORED HYDRANT SPOOL. SCORE SHALL BE PLACED 2" MIN. ABOVE SURFACE.

NOTES:

- 1. 4" OUTLET TO BE FACING STREET.
- 2. PAINT HYDRANT AND EXPOSED METAL SPOOL WITH TWO COATS OF SCHOOL BUS YELLOW "RUST-OLEUM" ENAMEL OR APPROVED EQUAL.
- 3. TRENCH BACKFILL PER CITY STD. 108.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			FIRE HYDRANT DETAIL	1004

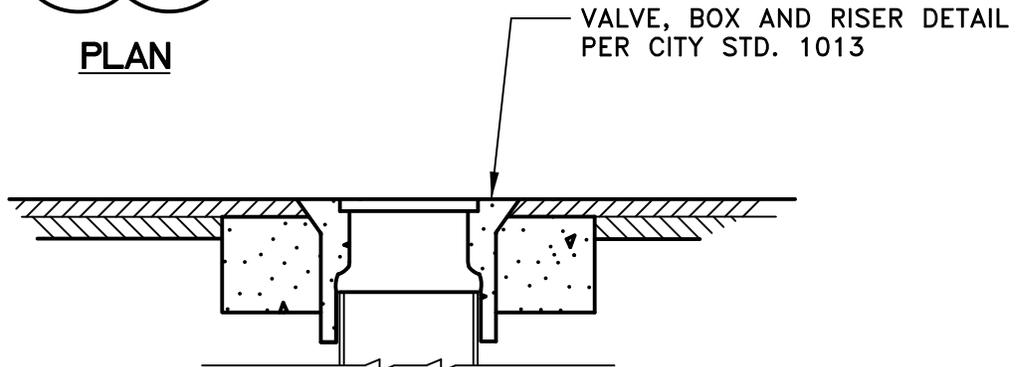


NOTES:

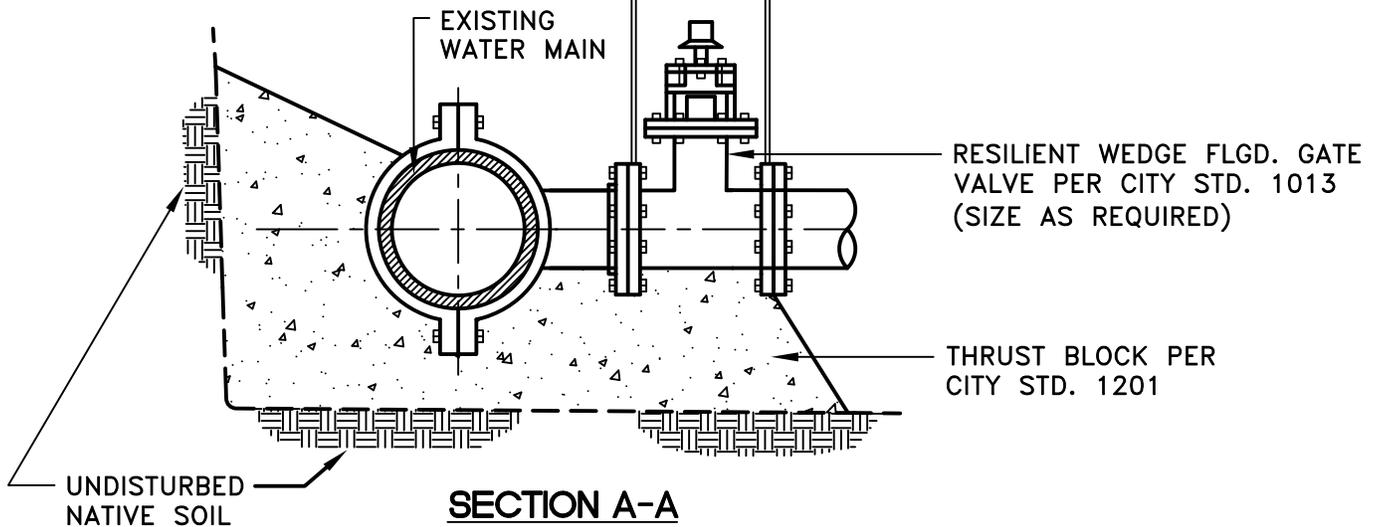
1. VERIFY EXISTING PIPE O.D. PRIOR TO ORDERING AND/OR INSTALLING TAPPING SLEEVE.
2. WRAP METALLIC PARTS WITH 8 MIL POLYETHYLENE ENCASEMENT.

MUELLER H-304 S.S. TAPPING SLEEVE OR APPROVED EQUAL (SIZE AS REQUIRED)

PLAN



VALVE, BOX AND RISER DETAIL PER CITY STD. 1013



RESILIENT WEDGE FLGD. GATE VALVE PER CITY STD. 1013 (SIZE AS REQUIRED)

THRUST BLOCK PER CITY STD. 1201

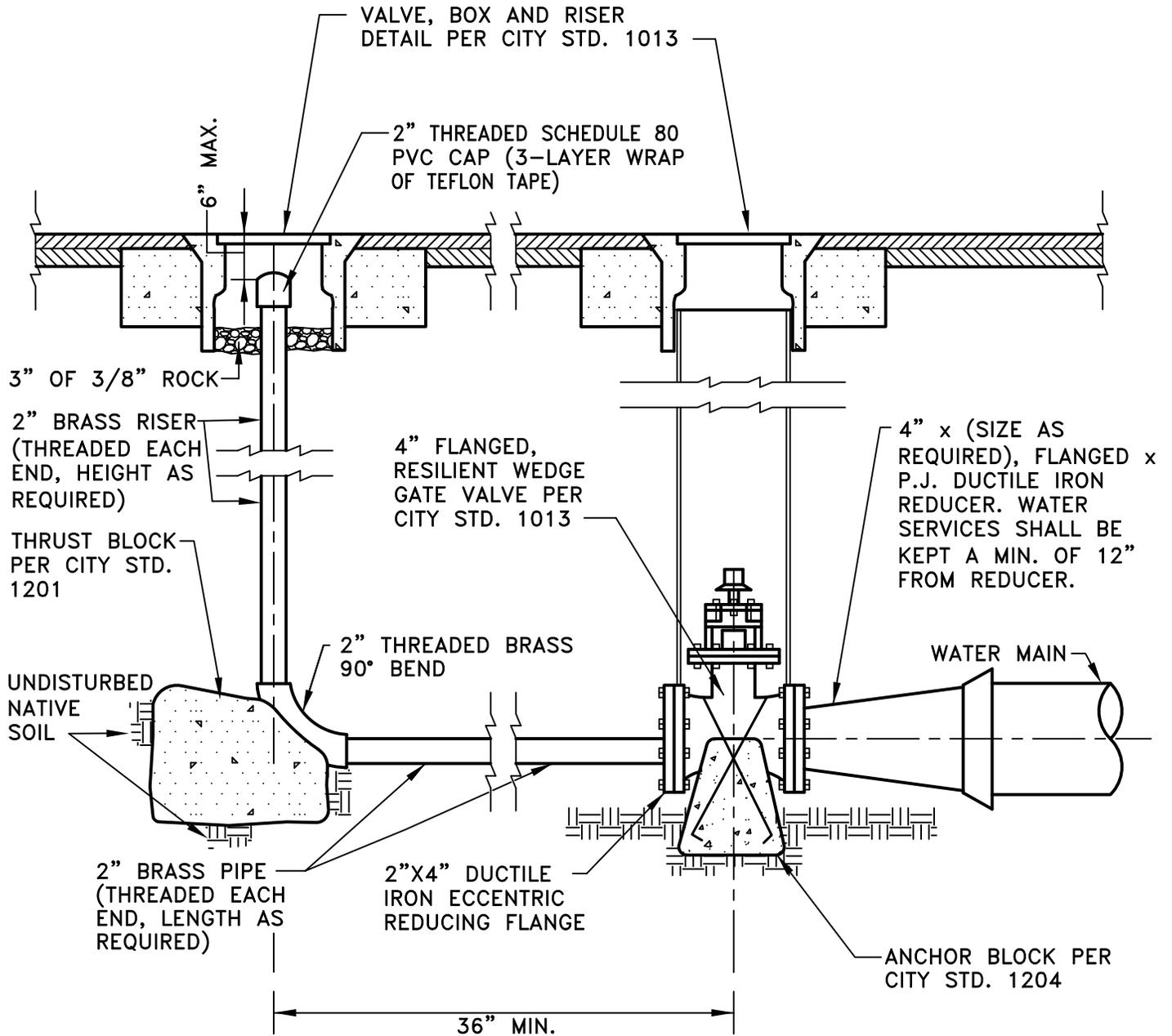
SECTION A-A

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			TAPPING SLEEVE AND GATE VALVE FOR ACP, PVC AND DIP	1005
			2012 EDITION	

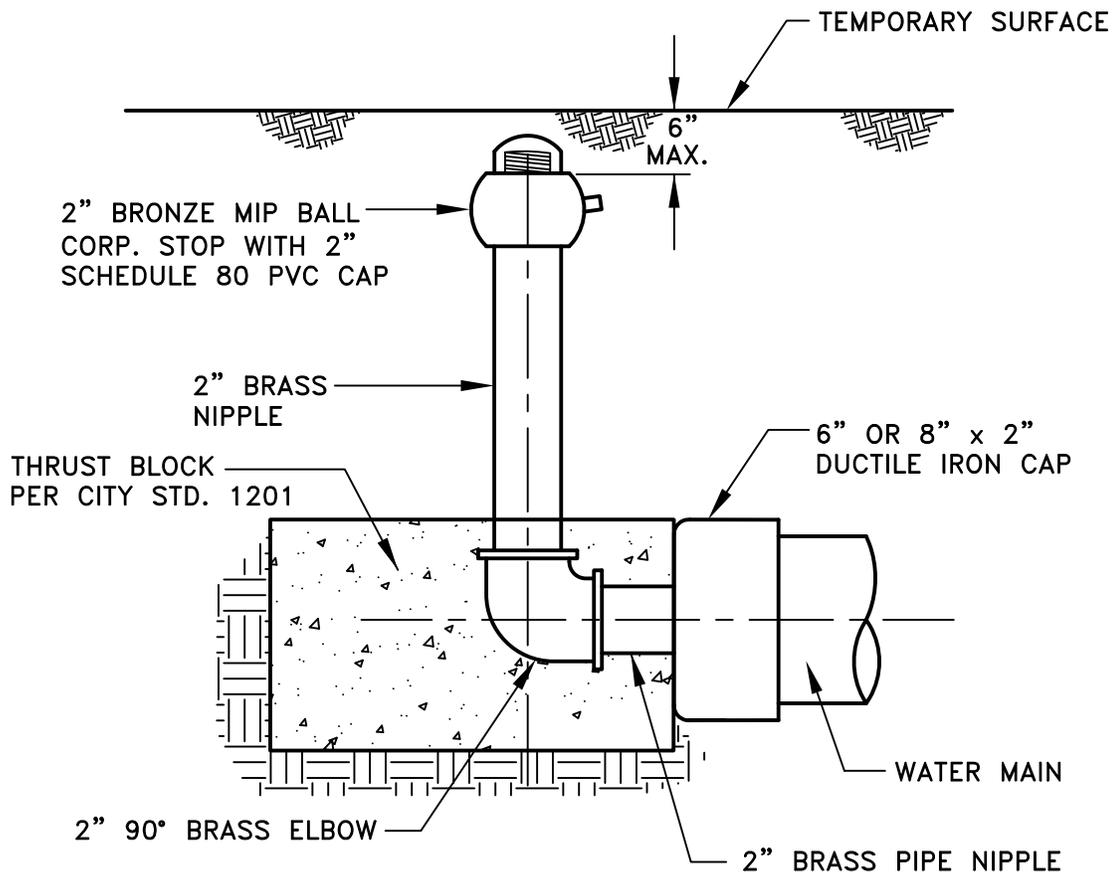
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REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			TAPPING SLEEVE AND GATE VALVE FOR STEEL PIPE	1006
			2012 EDITION	



NO SCALE

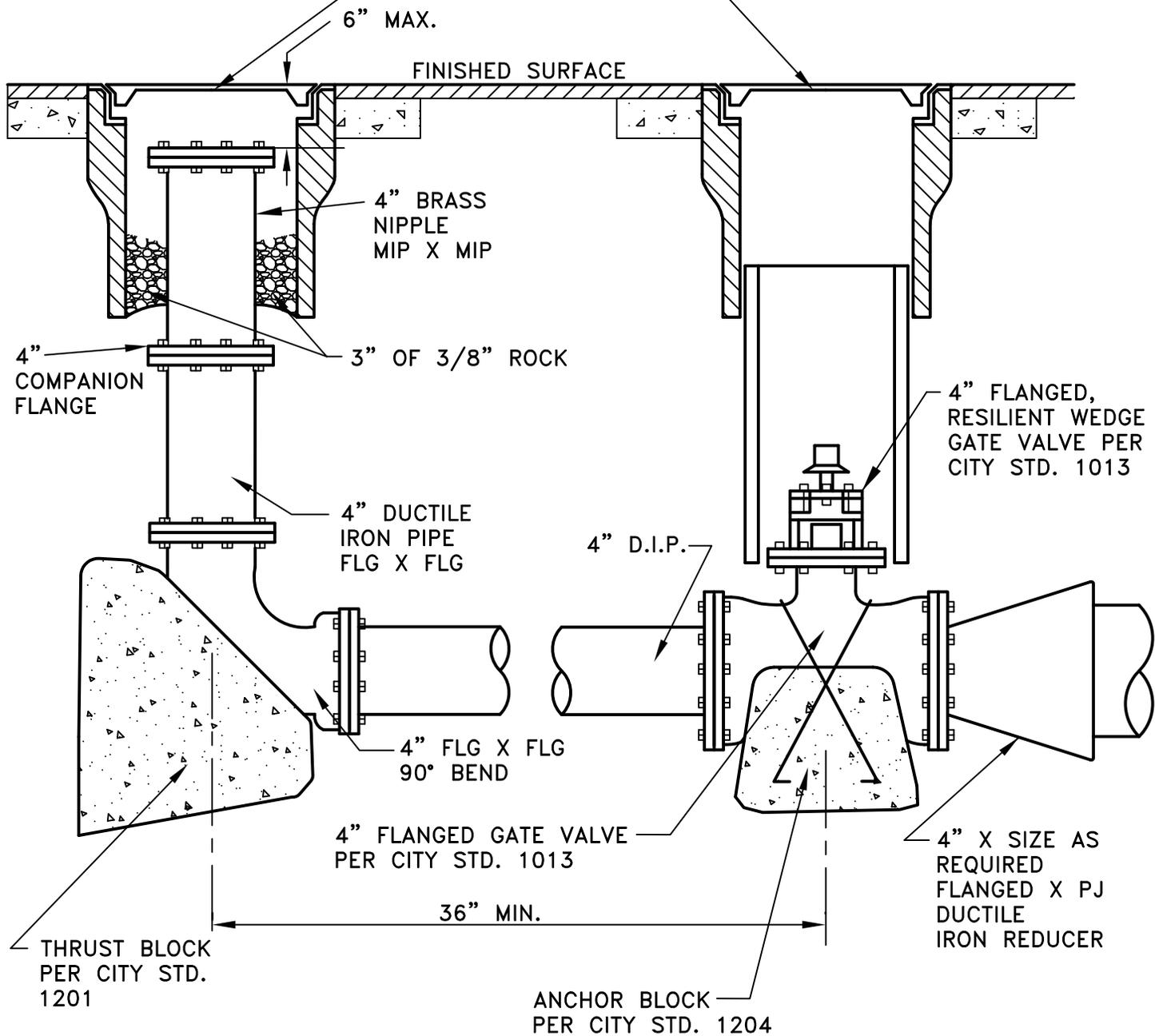
REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			2" BLOW-OFF ASSEMBLY	1007



NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO. 1008
DATE	DESCRIPTION	APP'D	2" TEMPORARY BLOW-OFF	
			2012 EDITION	

VALVE, BOX AND RISER DETAIL
PER CITY STD. 1013



NOTES:

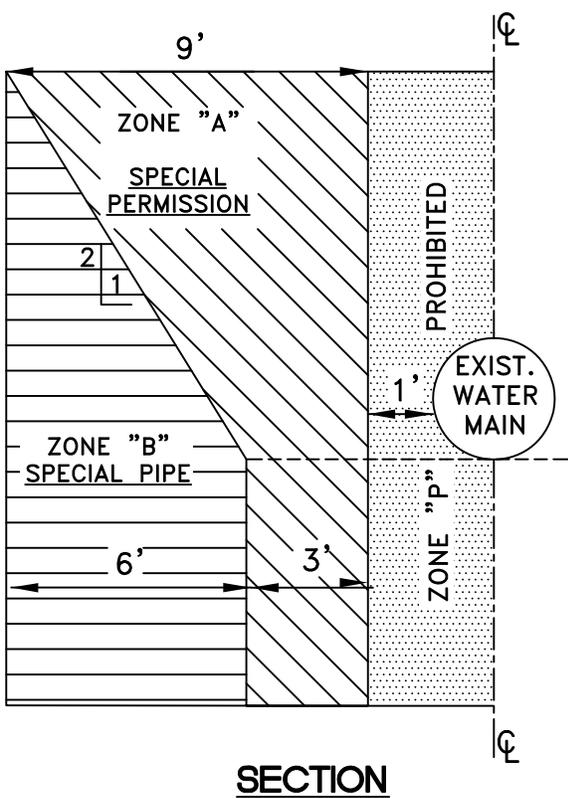
1. WRAP ALL METALIC PARTS WITH 8 MIL POLYETHYLENE ENCASEMENT.
2. ALL BOLTS SHALL BE 316 STAINLESS STEEL.

NO SCALE

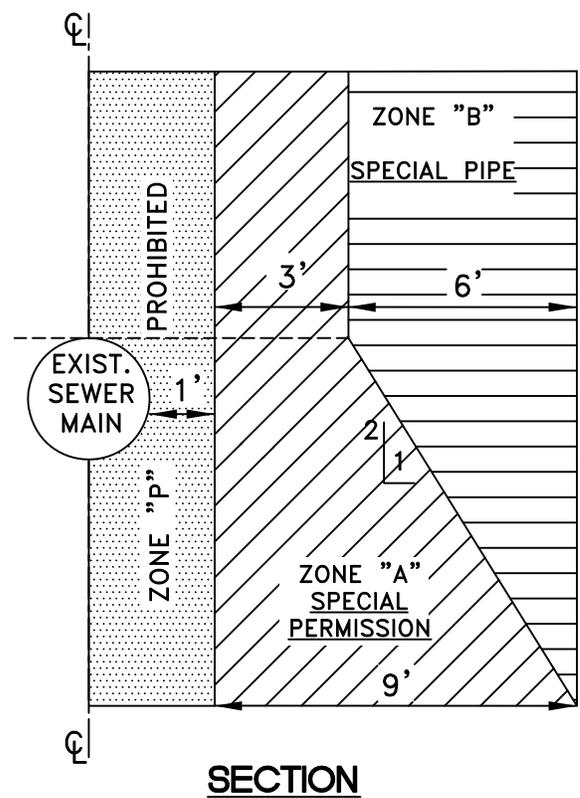
REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			4" TEMPORARY BLOW-OFF	1010

FIGURE 1 - PARALLEL CONSTRUCTION

CASE 1: NEW SEWER MAIN



CASE 2: NEW WATER MAIN

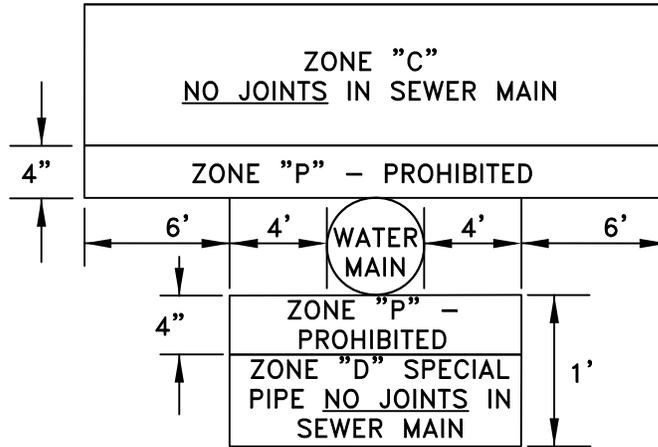


SEE NOTES ON SHEETS 3 & 4

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			WATER MAIN DESIGN CRITERIA	1011
			2012 EDITION	

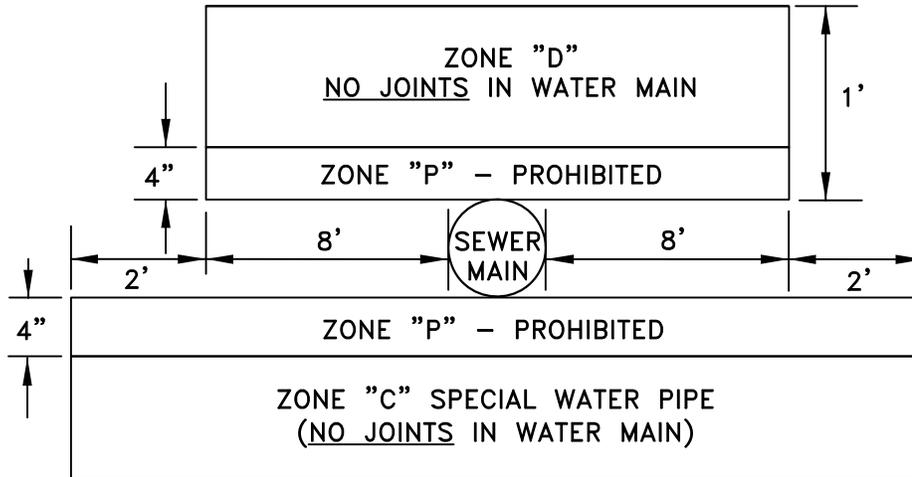
FIGURE 2 - CROSSING

CASE 1: NEW SEWER MAIN



SECTION

CASE 2: NEW WATER MAIN



SECTION

SEE NOTES ON SHEETS 3 & 4

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO. 1011
DATE	DESCRIPTION	APP'D	WATER MAIN DESIGN CRITERIA	

NOTES:

1. DIMENSIONS ARE FROM OUTSIDE OF WATER MAIN TO OUTSIDE OF SEWER. ALL CROSSINGS SHALL BE AT 90 DEGREES WHERE POSSIBLE.
2. ZONES IDENTICAL ON EITHER SIDE OF CENTER LINES.
3. ZONE "P" IS A PROHIBITED ZONE. SECTION 64630 (e) (2) CALIFORNIA CODE OF REGULATIONS, TITLE 22 (CURRENT); OR SECTION 64572 (a) CALIFORNIA CODE OF REGULATIONS, TITLE (PROPOSED).
4. SEWER OR WATER MAINS THAT ARE 24" OR LARGER IN DIAMETER, HOUSE LATERALS ABOVE PRESSURED WATER MAINS AND SEWERS WITHIN 25' OF LOW HEAD WATER MAINS SHALL BE REVIEWED AND APPROVED BY THE DEPARTMENT OF PUBLIC HEALTH.
5. MINIMUM SEPARATION SHALL BE 10' HORIZONTALLY AND 1' VERTICALLY ABOVE SEWER MAIN. IN EXCEPTIONAL SITUATIONS, WHERE SEPARATION IS NOT FEASIBLE, THE ABOVE SPECIAL CONSTRUCTION PROVISIONS SHALL BE MADE.
6. WATER MAINS AND SEWER MAINS SHALL NOT BE INSTALLED IN A COMMON TRENCH. WATER SERVICE LATERALS AND SEWER LATERALS SHALL HAVE A 5' MIN. SEPARATION.
7. THE DESIGN AND INSTALLATION OF SEWER FORCE MAINS REQUIRE CITY REVIEW AND APPROVAL.
8. REF. SOURCE: CRITERIA FOR THE SEPARATION OF WATER MAINS AND SANITARY SEWER, THE STATE OF CALIFORNIA DEPARTMENT OF PUBLIC HEALTH; AS LAST REVISED.
9. IF CONFLICT BETWEEN THIS STANDARD AND THE STATE OF CALIFORNIA DEPARTMENT OF PUBLIC HEALTH EXISTS, THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH WILL CONTROL.
10. SEPARATION CRITERIA ALSO APPLIES TO HOUSE LATERALS ABOVE PRESSURE WATER MAINS.

NOTES CONTINUED ON SHEET 4

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO. 1011
DATE	DESCRIPTION	APP'D	WATER MAIN DESIGN CRITERIA	
			2012 EDITION	

CASE I - NEW SEWER MAIN - EXISTING WATER MAIN (FIGURES 1 AND 2)

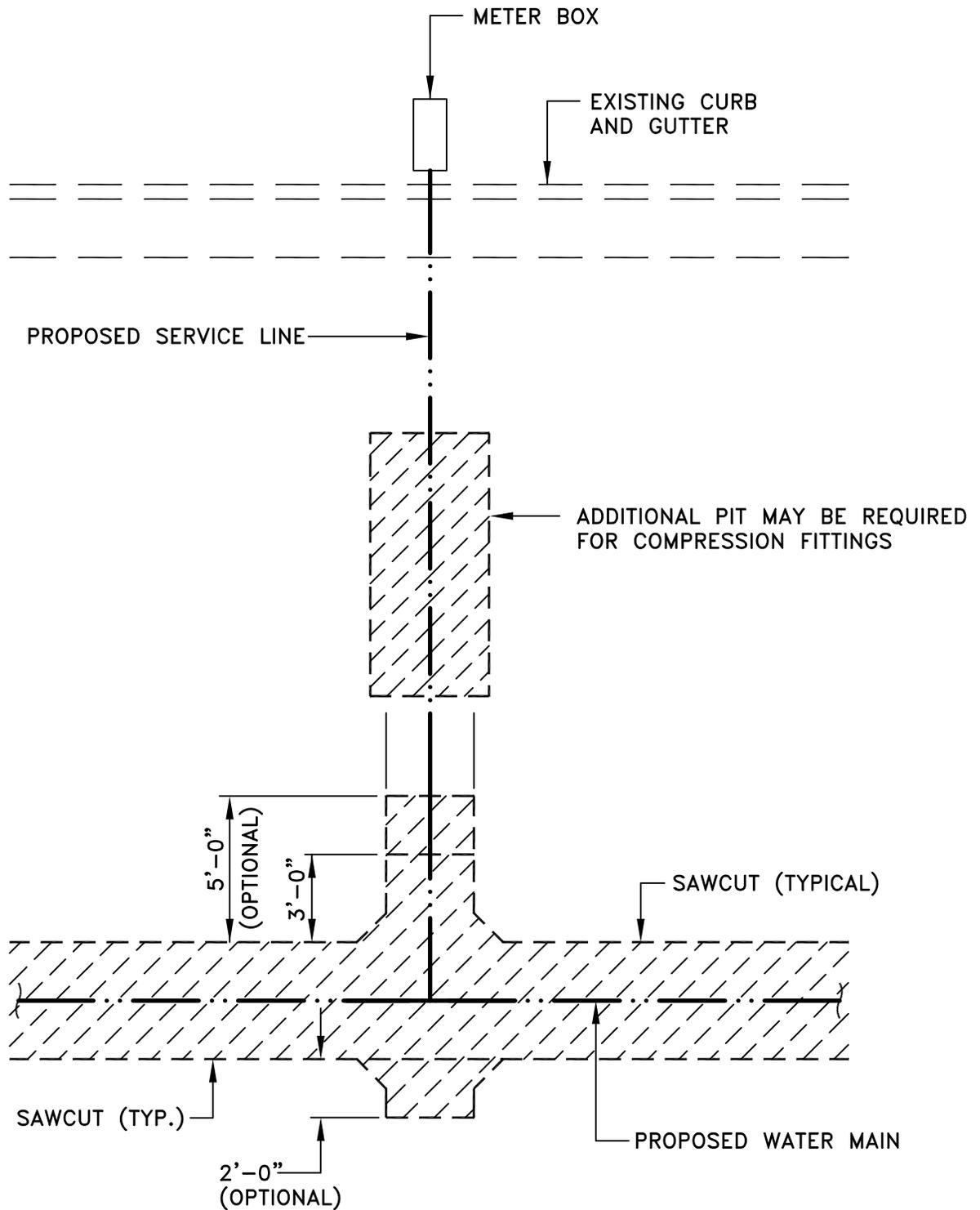
- ZONE "A" SEWER LINES SHALL NOT BE PERMITTED IN THIS ZONE WITHOUT SPECIAL PERMISSION FROM THE STATE OF CALIFORNIA DEPARTMENT OF PUBLIC HEALTH.
- "B" EXTRA-STRENGTH VITRIFIED CLAY PIPE OR DUCTILE IRON PIPE WITH COMPRESSION JOINTS, SPIRALLY REINFORCED HDPE PIPE WITH GASKETED JOINTS, OR PVC SEWER PIPE WITH PUSH-ON TYPE RUBBER RING JOINTS FOR SEWER LINES.
- "C" A CONTINUOUS SECTION OF DUCTILE IRON PIPE WITH HOT DIP BITUMINUS COATING (SEWER MAIN SHALL HAVE NO JOINTS WITHIN 10 FEET FROM EITHER SIDE OF THE WATER MAIN) OR SEWER PIPE WITHIN A CONTINUOUS SLEEVE, OR ANY SEWER PIPE IN A 1/4" THICK CONTINUOUS STEEL CASING WITH ANNULAR SPACE PRESSURE GROUTED FOR SEWER LINES.
- "D" DUCTILE IRON PIPE WITH HOT DIP BITUMINUS COATING AND MECHANICAL JOINTS (THE SEWER MAIN SHALL HAVE NO JOINTS WITHIN 4 FEET FROM EITHER SIDE OF THE WATER MAIN), OR SEWER PIPE WITHIN A CONTINUOUS SLEEVE. ANY SEWER PIPE IN A 1/4" THICK CONTINUOUS STEEL CASING WITH ANNULAR SPACE PRESSURE GROUTED ON ANY SEWER PIPE SEPARATED BY A 10'x10'x4" THICK REINFORCED CONCRETE SLAB.
- "P" SEWER LINES SHALL NOT BE PERMITTED IN THIS ZONE.

CASE II - NEW WATER MAIN - EXISTING SEWER MAIN (FIGURES 1 AND 2)

- ZONE "A" NO WATER MAINS PARALLEL TO SEWER MAINS SHALL BE CONSTRUCTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE DEPARTMENT OF PUBLIC HEALTH.
- "B" IF THE SEWER MAIN PARALLELING THE WATER MAIN DOES NOT MEET THE CASE I ZONE B REQUIREMENTS, THE WATER MAIN SHALL BE DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING, CMC&L 1/4" THICK WELDED STEEL PIPE OR CLASS 200 PRESSURE RATED PVC WATER PIPE.
- "C" IF THE SEWER MAIN CROSSING ABOVE THE WATER MAIN DOES NOT MEET THE CASE I ZONE C REQUIREMENTS, THE WATER MAIN SHOULD HAVE NO JOINTS WITHIN TEN FEET FROM EITHER SIDE OF THE WATER MAIN (IN ZONE C) AND BE CONSTRUCTED OF ONE OF THE FOLLOWING:
1. DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING
 2. CMC&L 1/4" THICK WELDED STEEL PIPE
 3. CLASS 200 PRESSURE RATED PVC WATER PIPE
- "D" IF THE SEWER MAIN CROSSING BELOW THE WATER MAIN DOES NOT MEET THE REQUIREMENTS FOR CASE 1 ZONE D, THE WATER MAIN SHOULD HAVE NO JOINTS WITHIN EIGHT FEET FROM EITHER SIDE OF THE SEWER MAIN (IN ZONE D) AND SHOULD BE CONSTRUCTED AS IN ZONE C.
- "P" WATER MAINS SHALL NOT BE CONSTRUCTED WHEN A SEWER LINE EXISTS WITHIN THIS ZONE.

NOTES CONTINUED FROM SHEET 3

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO. 1011
DATE	DESCRIPTION	APP'D	WATER MAIN DESIGN CRITERIA	
			2012 EDITION	



NOTES:

1. TRENCH REPAIR PER CITY STD 108.
2. A.C. PAVEMENT REPLACEMENT PER AGENCY ENCROACHMENT PERMIT.

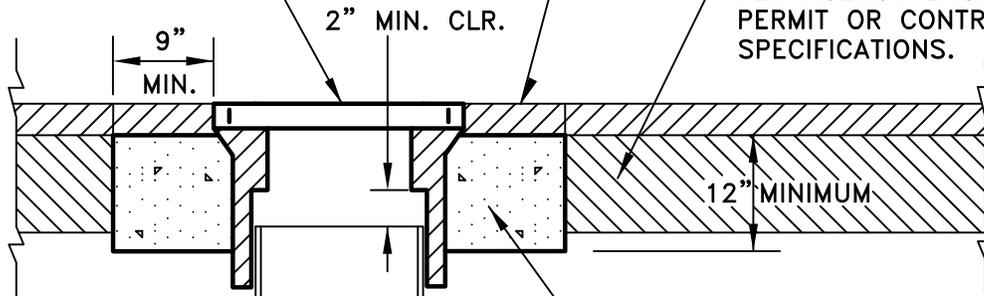
NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			WATER LINE SERVICE BORE PIT	1012

BROOKS 4TT VALVE BOX WITH COVER MARKED "WATER" OR APPROVED EQUAL

1-1/2" A.C. CAP IN PAVED AREAS. IN CONCRETE AREAS, CONCRETE SHALL BE FLUSH WITH EXISTING PAVEMENT.

A.C. PAVEMENT REPLACEMENT PER AGENCY ENCROACHMENT PERMIT OR CONTRACT PLANS & SPECIFICATIONS.



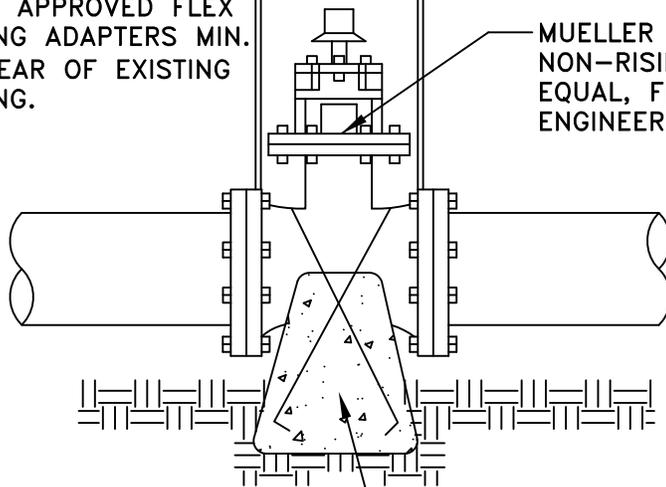
CLASS 560-C-3250 CONCRETE COLLAR

8" DIA. SCH. 40 PVC RISER (LENGTH AS NEEDED)

NOTE:

1. FOR CUT-IN VALVE, INSTALL APPROVED FLEX COUPLING ADAPTERS MIN. 24" CLEAR OF EXISTING COUPLING.

MUELLER 2360 SERIES RESILIENT WEDGE, NON-RISING STEM GATE VALVE OR APPROVED EQUAL, FLG PJ OR MJ AS DIRECTED BY CITY ENGINEER

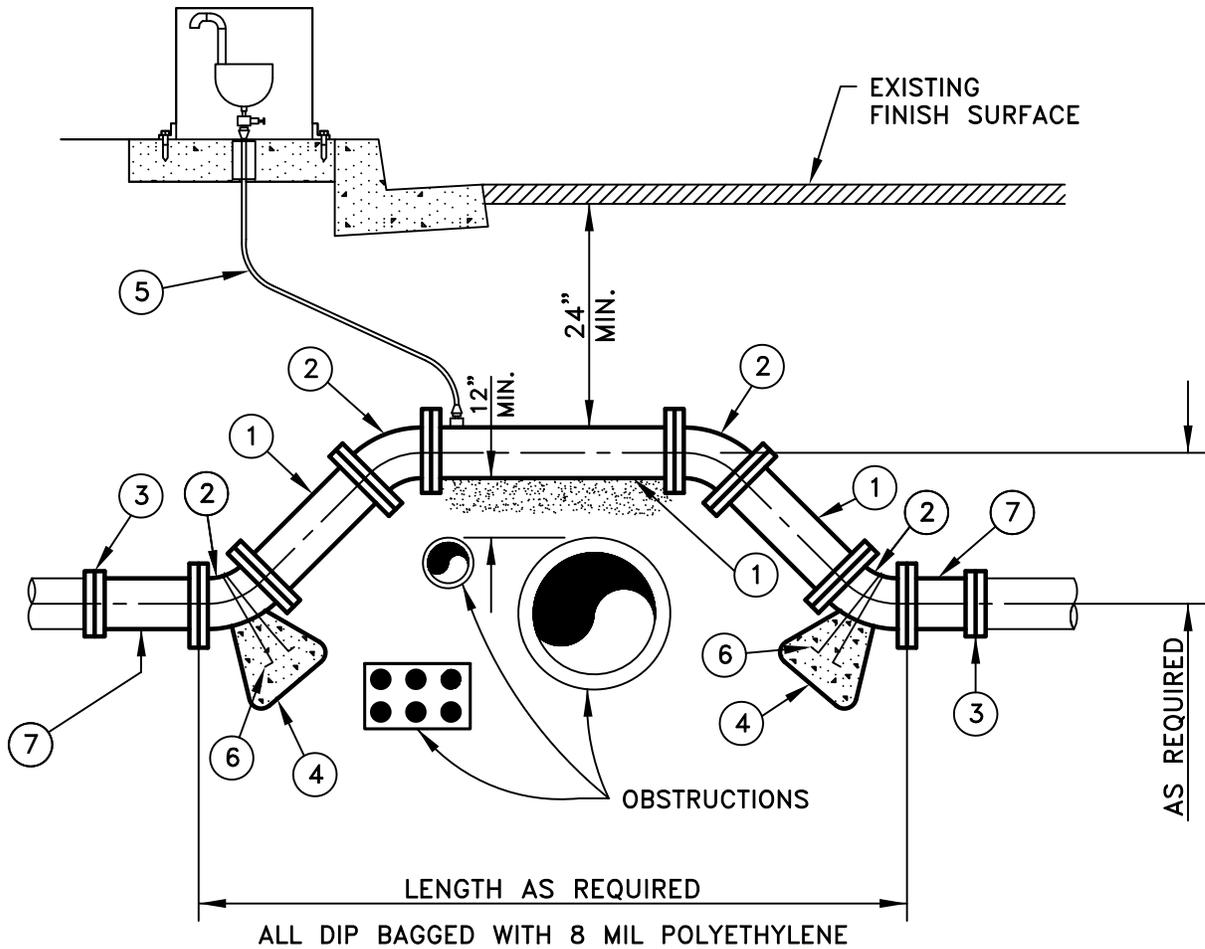


ANCHOR BLOCK DETAIL PER CITY STD. 1204

ELEVATION

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			VALVE, BOX AND RISER	1013
			2012 EDITION	



CONSTRUCTION NOTES:

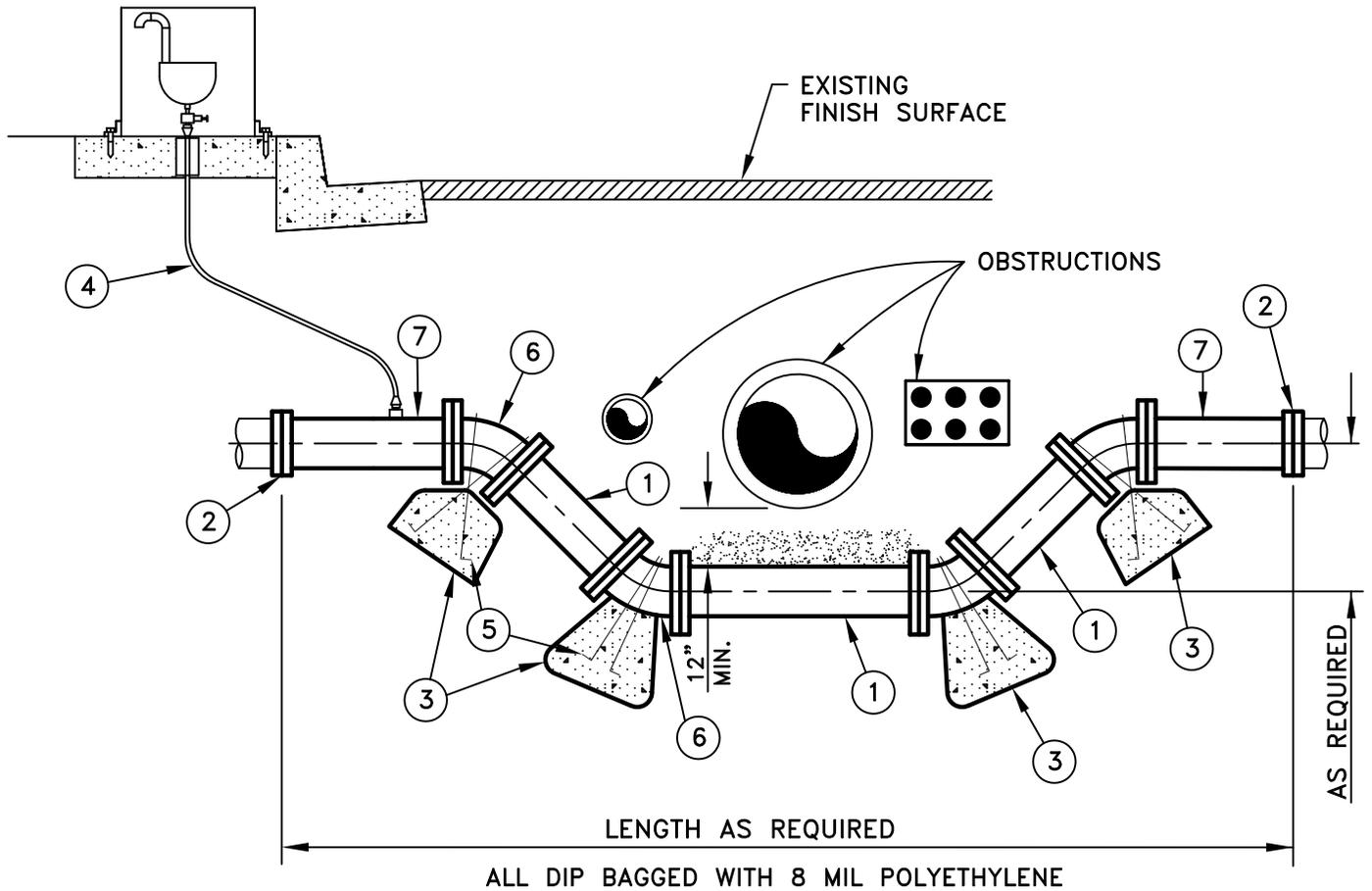
- ① DUCTILE IRON FLANGED SPOOL (CLASS 300) LENGTH AS REQUIRED
- ② 45° DIP FLANGED BEND
- ③ TRANSITION COUPLING
- ④ ANCHOR BLOCK PER CITY STDS. 1201 AND 1202
- ⑤ 1" AIR RELEASE ASSEMBLY (PER CITY STD. 1103 – INSTALL ON HIGH END)
- ⑥ #4 BAR, STEEL STIRRUPS (PER CITY STD. 1203)
- ⑦ FLG X P.E. DIP (LENGTH AS REQUIRED)

NOTES:

- 1. ALL BOLTS SHALL BE 316 STAINLESS STEEL.
- 2. BACKFILL: – 6" MIN. SAND BEDDING WITH 12" SAND COVER, ONE (1) SACK SLURRY BACKFILL AS DIRECTED (S.E. 30 MIN.)

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			DUCTILE IRON OFFSET (OVER OBSTRUCTIONS)	1014



CONSTRUCTION NOTES:

- ① DUCTILE IRON FLANGED SPOOL (CLASS 300) LENGTH AS REQUIRED
- ② TRANSITION COUPLING
- ③ ANCHOR BLOCK PER CITY STDS. 1201 AND 1202
- ④ 1" AIR RELEASE ASSEMBLY (PER CITY STD. 1103 - IF REQUIRED LOCATION AS DIRECTED)
- ⑤ #4 BAR, STEEL STIRRUPS (PER CITY STD. 1203)
- ⑥ 45° DIP FLANGED BEND
- ⑦ FLG X P.E. DIP (LENGTH AS REQUIRED)

NOTES:

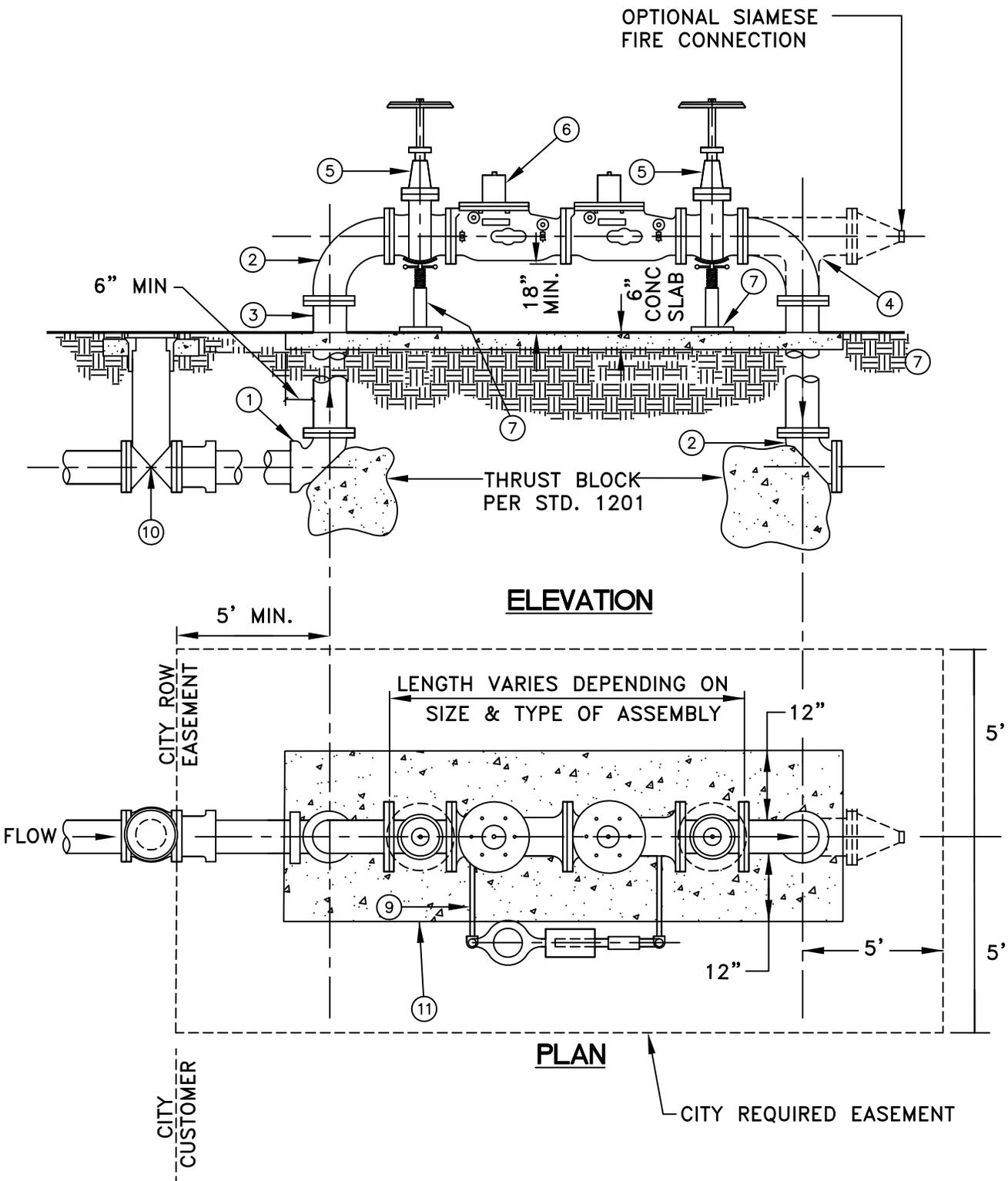
- 1. ALL BOLTS SHALL BE 316 STAINLESS STEEL.
- 2. BACKFILL: - 6" MIN. SAND BEDDING WITH 12" SAND COVER, ONE (1) SACK SLURRY BACKFILL AS DIRECTED (S.E. 30 MIN.)

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			DUCTILE IRON OFFSET (UNDER OBSTRUCTIONS)	1015

SECTION 1100

AIR VACS – BACKFLOW DEVICES



NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	1101	
			DOUBLE CHECK DETECTOR ASSEMBLY	
			2012 EDITION	

CONSTRUCTION NOTES:

- ①— 90° DI BEND (TYP.) FLG X P.J.
- ②— 90° DI ELL FLG X FLG
- ③— DIP (CL 300) SPOOL FLG X FLG (LENGTH AS REQUIRED)
- ④— 90° (CL 300) FLG X FLG OR OPTIONAL DI (CL 300) TEE AND SIAMESE FIRE DEPARTMENT CONNECTION (2 1/2" X 2 1/2")
- ⑤— CITY APPROVED SHUT-OFF VALVES (SEE NOTE 1 BELOW)
- ⑥— CITY APPROVED DOUBLE CHECK DETECTOR ASSEMBLY (SIZE DEPENDS UPON REQUIREMENT) (SEE NOTE 1 BELOW)
- ⑦— ADJUSTABLE PIPE SADDLE SUPPORT
- ⑧— BLIND FLANGE
- ⑨— FACTORY INSTALLED BY-PASS METER ASSEMBLY (SEE NOTE 5 BELOW)
- ⑩— RESILIENT WEDGE GATE VALVE SHALL BE PLACED AT CITY ROW PER CITY STD. 1013
- ⑪— 560-C-3250 CONCRETE PAD

NOTES:

1. DOUBLE CHECK DETECTOR ASSEMBLY AS APPROVED BY FOUNDATION OF CROSS CONNECTION CONTROL, THE STATE OF CALIFORNIA DEPARTMENT OF PUBLIC HEALTH, AND CITY OF TUSTIN.
2. NOTIFY THE CITY OF TUSTIN INSPECTION SECTION PRIOR TO INSTALLATION OF UNIT.
3. INSTALLATION SHALL COMPLY WITH THE LATEST PLUMBING CODES AND APPLICABLE CITY OF TUSTIN REQUIREMENTS.
4. UPON COMPLETION OF THE INSTALLATION OF THE DEVICE, A TEST SHALL BE PERFORMED AND A CERTIFICATE OF ADEQUACY AND OPERATIONAL COMPLIANCE SHALL BE FURNISHED TO THE CITY OF TUSTIN INSPECTION SECTION. THE TEST SHALL BE PERFORMED BY A TESTING AGENCY APPROVED BY THE ORANGE COUNTY HEALTH DEPARTMENT.
5. BY-PASS METER AND BY-PASS DOUBLE CHECK VALVE SHALL BE COMPATIBLE WITH MAIN DOUBLE CHECK VALVE. DOUBLE CHECK VALVE ASSEMBLY AND BY-PASS ASSEMBLY SHALL BE FURNISHED AS ONE COMPLETE UNIT.
6. THRUST BLOCKS SHALL BE SIZED PER CITY STDS. 1201 & 1202.
7. ALL NUTS AND BOLTS SHALL BE 316 STAINLESS STEEL.

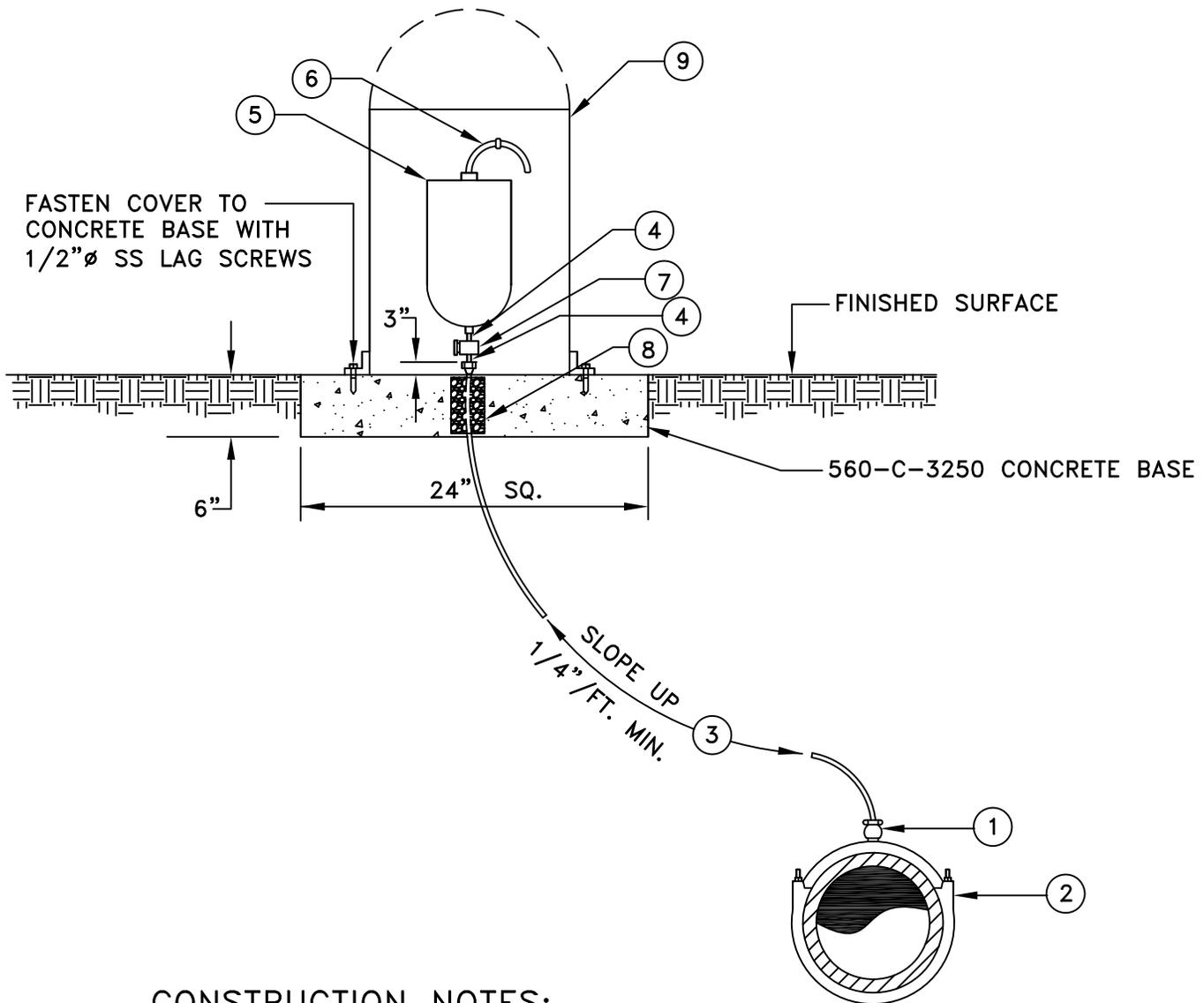
NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	DOUBLE CHECK DETECTOR ASSEMBLY	
				2012 EDITION

DELETED

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	STANDARD DETECTOR CHECK DETAIL FOR FIRE SERVICE	
				2012 EDITION



CONSTRUCTION NOTES:

- ① 1" BRONZE MIP CORP STOP, (JONES J-41 WITH J-2607 BRONZE COMPRESSION CONNECTION OR APPROVED EQUAL)
- ② ON EXISTING ACP OR DIP WATER MAIN FURNISH AND INSTALL DOUBLE STRAP BRONZE SADDLE WITH IP THREADS, JONES J-979 OR APPROVED EQUAL. ON C-900 WATER MAIN FURNISH AND INSTALL BRONZE SADDLE WITH IP THREADS, JONES J-969 OR APPROVED EQUAL.
- ③ TYPE "K" SOFT COPPER TUBING
- ④ BRASS NIPPLE COUPLING
- ⑤ AIR AND VACUUM RELEASE VALVE APCO 145C OR APPROVED EQUAL
- ⑥ BRONZE 90° STREET ELL (2-REQUIRED) WITH SS INSECT SCREEN
- ⑦ CORPORATION STOP (JONES J-3403 OR APPROVED EQUAL)
- ⑧ 2" P.V.C. SLEEVE FILLED WITH PEA GRAVEL
- ⑨ 20" DIA X 36" ARMORCAST A & V HOUSING - SANDSTONE FINISH OR APPROVED EQUAL

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			1" AIR AND VACUUM VALVE ASSEMBLY	1103

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REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	1" AIR AND VACUUM VALVE ENCLOSURE	
				2012 EDITION

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REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	2' AIR AND VACUUM VALVE ENCLOSURE	
				2012 EDITION

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REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO. 1107
DATE	DESCRIPTION	APP'D	AIR GAP SEPARATION	
			2012 EDITION	

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NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO. 1108
DATE	DESCRIPTION	APP'D	DOUBLE CHECK VALVE OR REDUCED PRESSURE PRINCIPAL ASSEMBLIES	

2012 EDITION

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NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	REDUCED PRESSURE PRINCIPAL ASSEMBLIES	
				1109
			2012 EDITION	

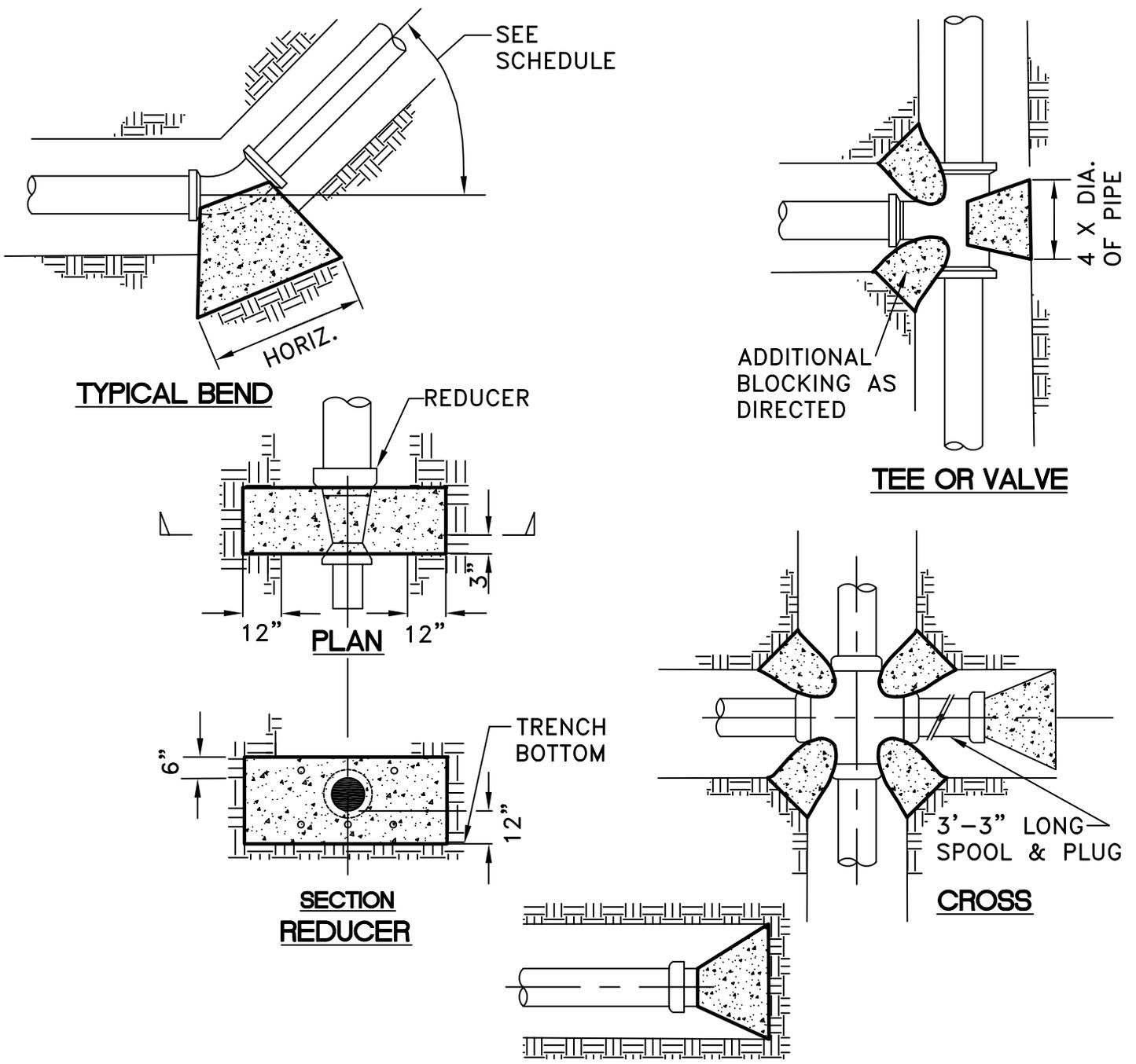
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NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	PRESSURE TYPE VACUUM BREAKERS 2012 EDITION	

SECTION 1200

THRUST BLOCKS – GUARD POSTS



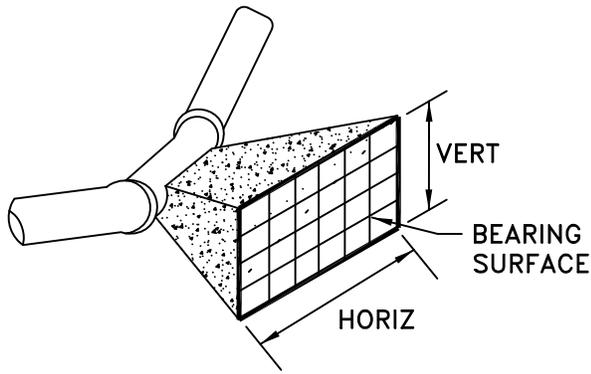
NOTES:

1. ALL THRUST BLOCK BEARING FACES SHALL BE PLACED AGAINST UNDISTURBED SOIL OR APPROVED COMPACTED BACKFILL.
2. CONCRETE SHALL BE CLASS 560-C-3250 PORTLAND CEMENT CONCRETE.
3. THRUST BLOCK BEARING FACE SHALL BE OF ADEQUATE SIZE TO RESTRAIN FORCES RESULTING FROM A 225 PSI LINE PRESSURE AND PER CITY STD. 1202.
4. CONCRETE SHALL BE PLACED SO THE PIPE AND FITTING JOINTS WILL BE ACCESSIBLE FOR REPAIR.

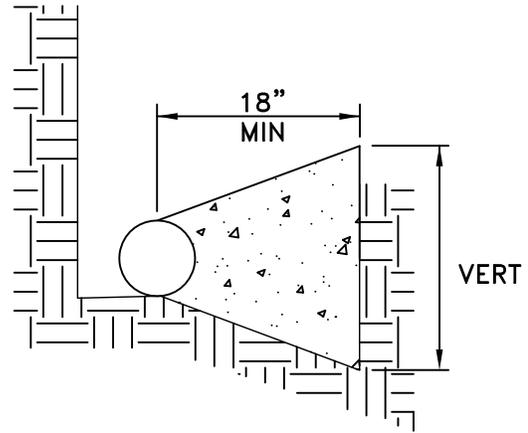
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NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			TYPICAL THRUST / ANCHOR BLOCKS	1201
			2012 EDITION	



TYPICAL BEARING SURFACE



TYPICAL PROFILE

MINIMUM SIZE OF THRUST BLOCK BEARING SURFACE

NOTES:

1. THRUST BLOCK BEARING AREA BASED ON 225 P.S.I. LINE PRESSURE AND ALLOWABLE SOIL BEARING VALUE OF 1500 psf PRESSURE WITH 36" MINIMUM COVER.
FOR BEARING = 1000psf, 1.5 X AREA SHOWN
FOR BEARING = 500psf, 3.0 X AREA SHOWN
2. ALL THRUST BLOCKS SHALL BE TYPE V CEMENT AND PLACED AGAINST UNDISTURBED SOIL. DESIGN ENGINEER SHALL DETERMINE SIZES NOT SHOWN.
3. THRUST BLOCKS ON CROSSES SHALL BE USED ONLY WHEN THERE IS A STUB-OUT ON ONE OR MORE SIDES.
4. REINFORCING STEEL SHALL CONFORM TO ASTM A15 AND A305 INTERMEDIATE GRADE.
5. AT ALL FITTINGS A 3' X 3" MEE SHALL BE INSTALLED ON EACH SIDE OF FITTING.
6. CONCRETE SHALL NOT EXTEND ONTO FLANGE OR ADJOINING PIPE.

PIPE SIZE	11 1/4" BEND		22 1/2" BEND		45° BEND		90° BEND		TEE		END CAP	
	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.
4"	1'-6"	0'-9"	1'-6"	0'-9"	1'-6"	1'-0"	2'-3"	1'-3"	1'-6"	1'-0"	1'-6"	1'-6"
6"	2'-6"	1'-0"	2'-6"	1'-0"	3'-6"	1'-6"	4'-6"	2'-3"	4'-0"	2'-0"	2'-6"	1'-9"
8"	3'-0"	1'-6"	3'-0"	1'-6"	4'-3"	2'-3"	5'-6"	3'-0"	5'-0"	2'-6"	3'-9"	2'-0"
10"	3'-9"	1'-9"	3'-9"	1'-9"	5'-0"	2'-9"	7'-0"	3'-6"	5'-6"	3'-3"	4'-6"	2'-6"
12"	4'-3"	2'-3"	4'-3"	2'-3"	5'-6"	3'-6"	8'-3"	4'-0"	7'-0"	3'-6"	5'-3"	3'-0"
16"	5'-0"	3'-0"	5'-0"	3'-0"	7'-4"	4'-0"	10'-0"	5'-0"	9'-6"	4'-0"	9'-6"	4'-0"

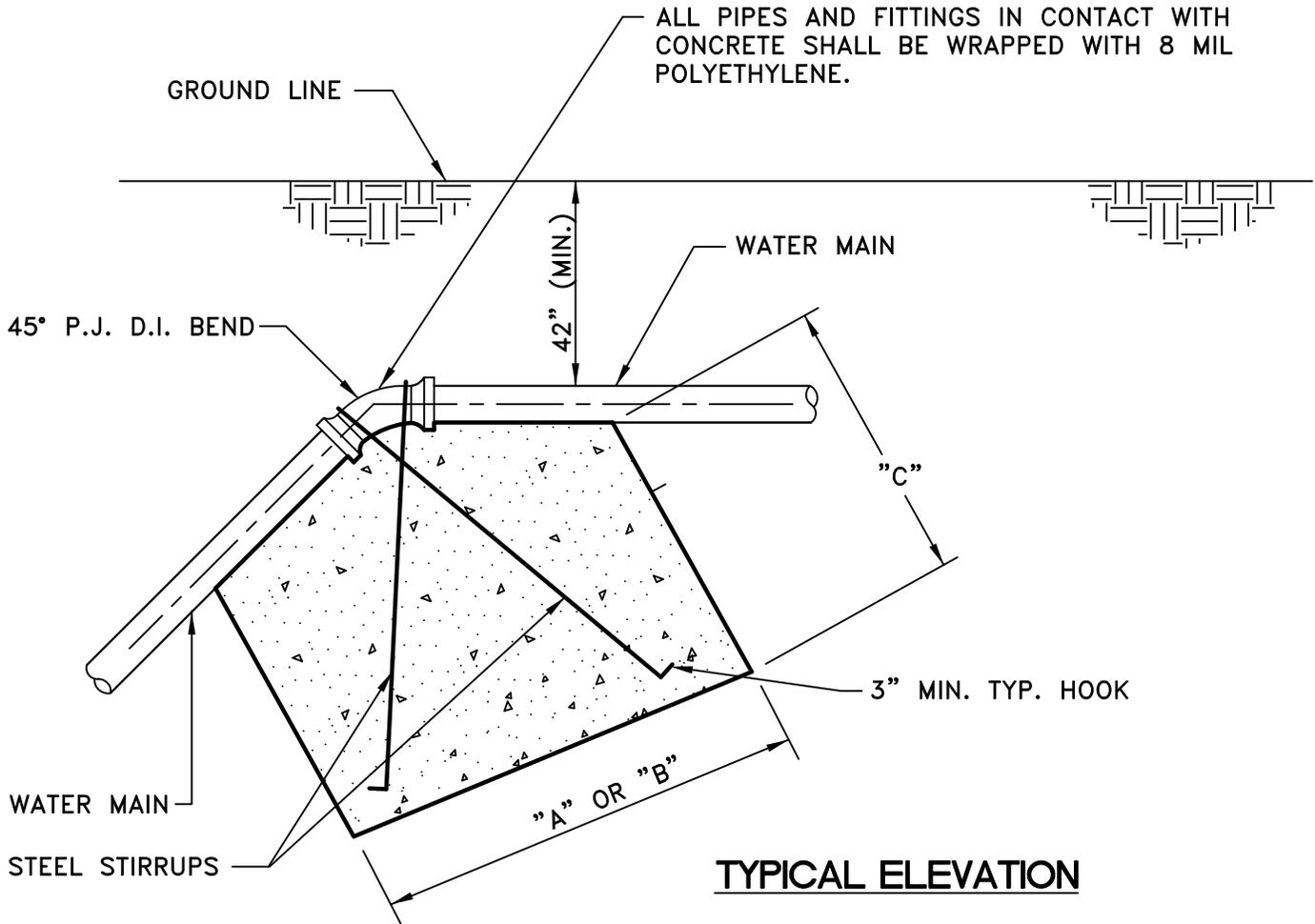
NOTE a) ALL BENDS 5° OR LESS, NO BLOCK REQUIRED.
 b) ALL BENDS ABOVE 5° TO 11 1/4°, USE SAME SIZE THRUST BLOCK AS FOR 11 1/4° BEND.
 c) ALL BENDS BETWEEN THOSE SHOWN ABOVE, USE THE NEXT LARGER THRUST BLOCK SIZE.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS		STD. NO. 1202
DATE	DESCRIPTION	APP'D	THRUST / ANCHOR BLOCK DETAILS FOR 4"-12" D.I. FITTINGS		
			2012 EDITION		

NOTE:

ANCHOR BLOCK SHALL BE CLASS 560-C-3250
CONCRETE AND POURED AGAINST UNDISTURBED SOIL.



ALL EXPOSED REBAR SURFACES SHALL BE COATED
WITH COP-COAT BITUMASTIC NO. 50 PROTECTIVE
COATING (2 COATS MINIMUM) OR APPROVED EQUAL.

#4 BARS FOR PIPE SIZES UP TO 12"
#5 BARS FOR PIPE SIZES 14 & 16"
#6 BARS FOR PIPE SIZE 20"

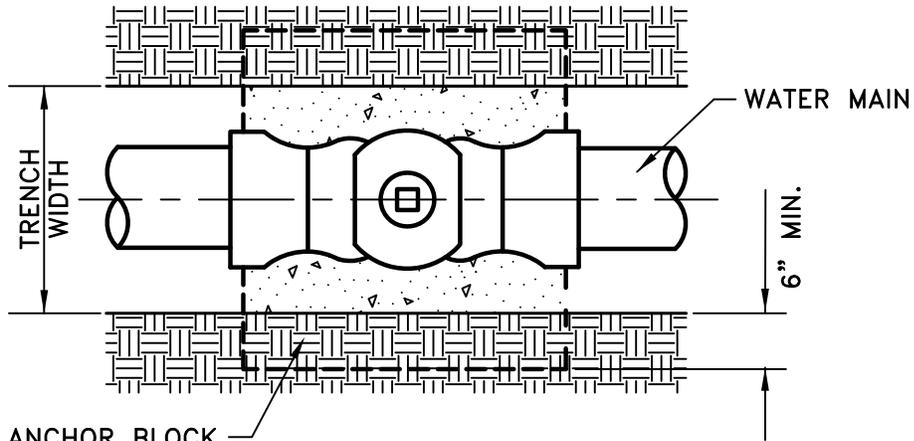
SCHEDULE						
CONCRETE ANCHOR BLOCK FOR 45° UPPER BEND AT VERTICAL OFFSET						
FITTINGS	CONCRETE ANCHOR BLOCK			STEEL STIRRUPS		
	A LENGTH	B LENGTH	C LENGTH	SIZE	QUANTITY	LENGTH
4" & 6" x 45° BEND	2.0'	2.0'	2.5'	1/2 Ø	2	8.5'
8" x 45° BEND	2.5'	2.5'	2.5'	1/2 Ø	2	9.0'
10" x 45° BEND	3.0'	3.0'	3.5'	1/2 Ø	2	11.5'
12" x 45° BEND	4.0'	4.0'	4.0'	1/2 Ø	2	12.0'

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS		STD. NO. 1203
DATE	DESCRIPTION	APP'D	ANCHOR BLOCK DETAILS FOR VERTICAL BENDS		
			2012 EDITION		

NOTES:

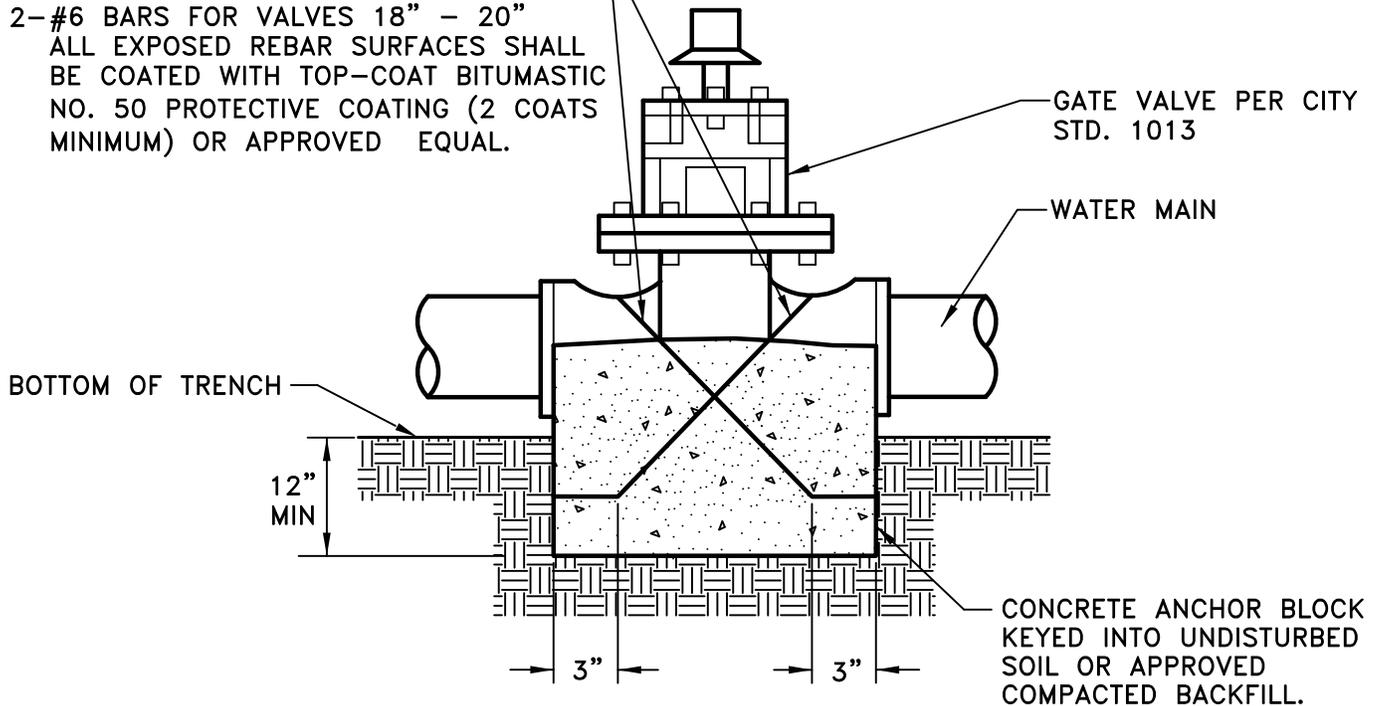
- ① ANCHOR BLOCKS SHALL BE CLASS 560-C-3250 CONCRETE AND POURED AGAINST UNDISTURBED SOIL.
- ② WRAP VALVE WITH 8 MIL POLYETHYLENE ENCASEMENT.



CONCRETE ANCHOR BLOCK KEYPED INTO UNDISTURBED SOIL OR APPROVED COMPACTED BACKFILL.

PLAN

- 2-#4 BARS FOR VALVES UP TO 12"
- 2-#5 BARS FOR VALVES 14" - 16"
- 2-#6 BARS FOR VALVES 18" - 20"
- ALL EXPOSED REBAR SURFACES SHALL BE COATED WITH TOP-COAT BITUMASTIC NO. 50 PROTECTIVE COATING (2 COATS MINIMUM) OR APPROVED EQUAL.

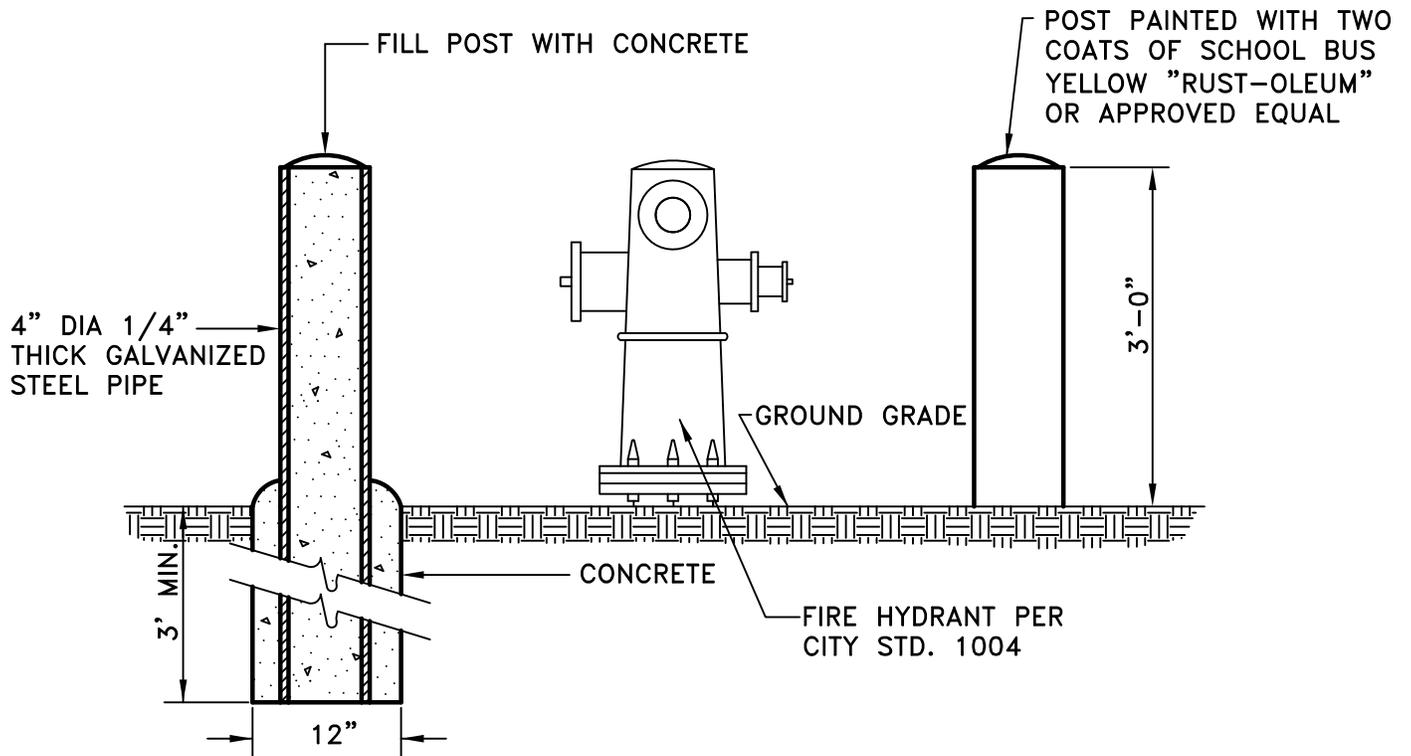
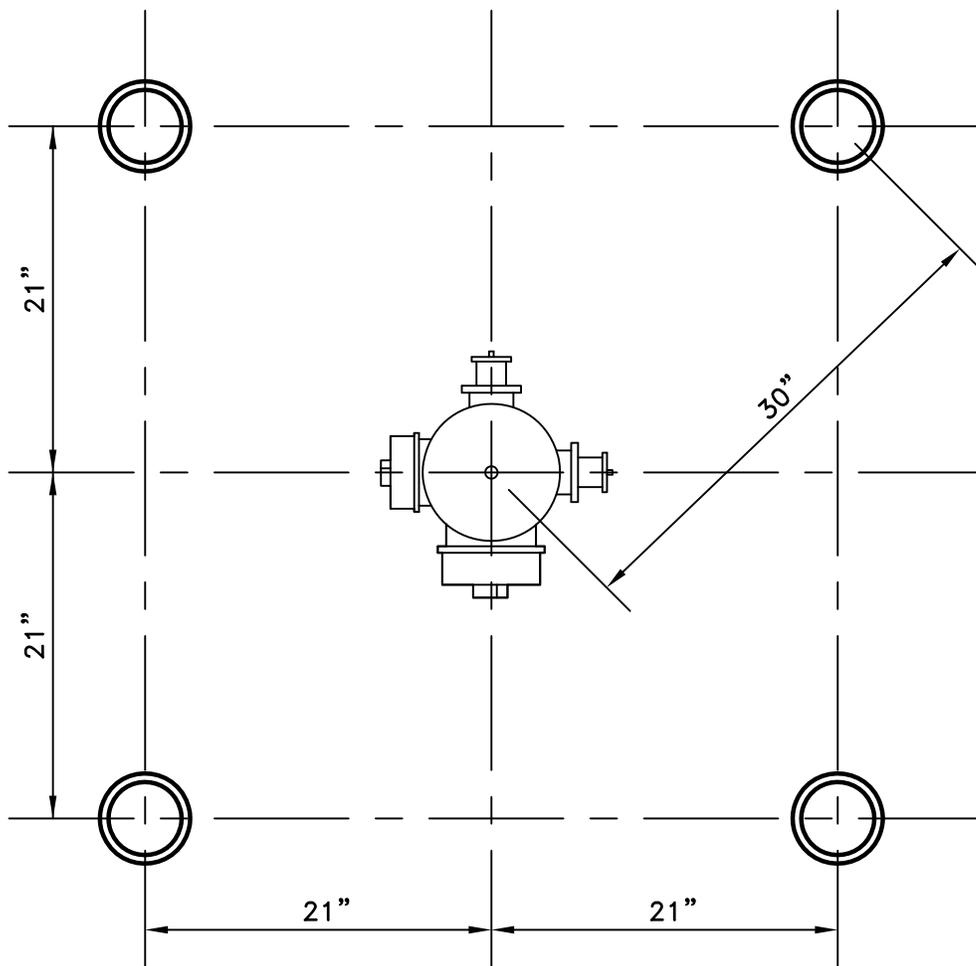


CONCRETE ANCHOR BLOCK KEYPED INTO UNDISTURBED SOIL OR APPROVED COMPACTED BACKFILL.

ELEVATION

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			ANCHOR BLOCK DETAILS FOR VALVES	1204



NO SCALE

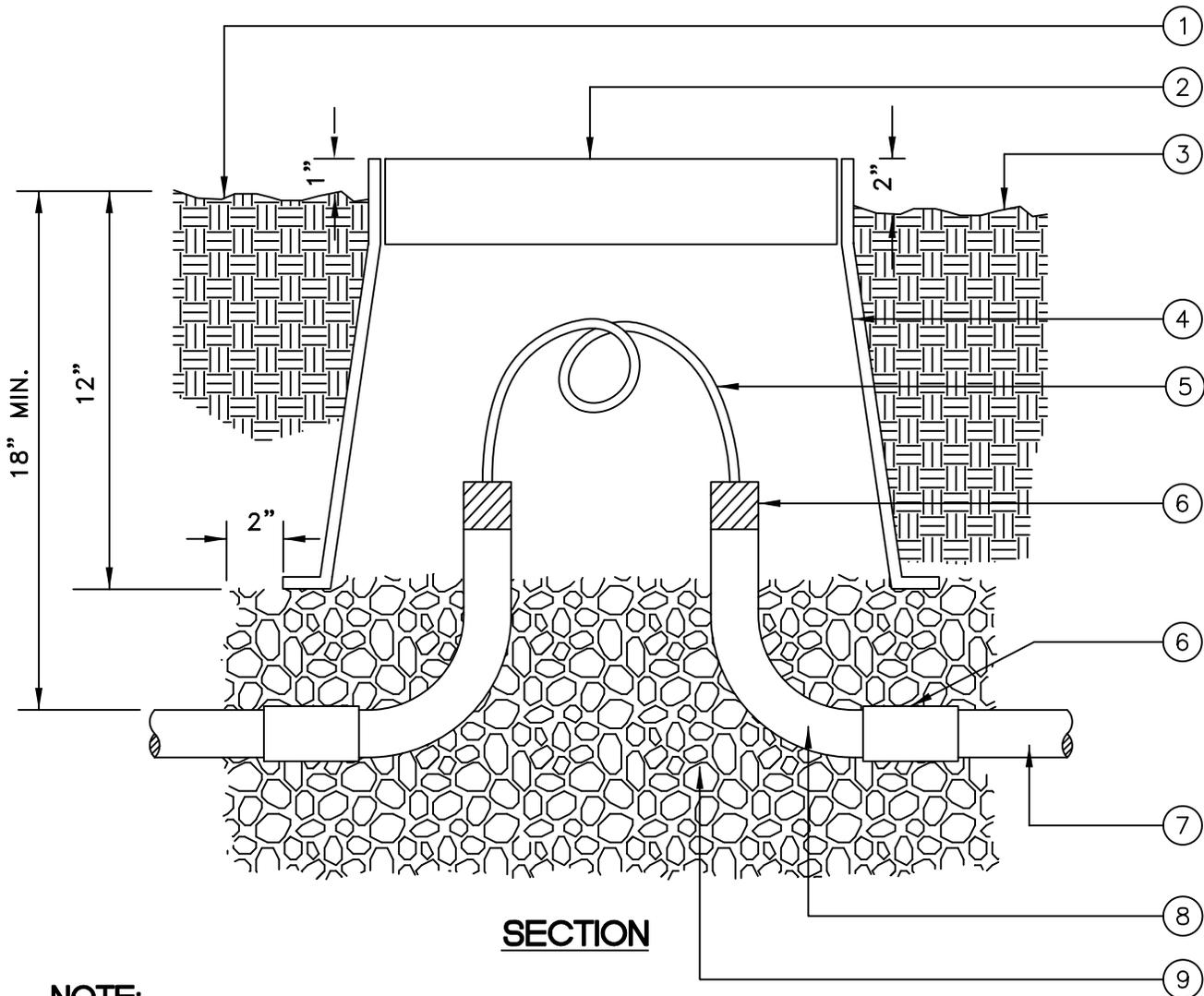
REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS		STD. NO. 1205
DATE	DESCRIPTION	APP'D	GUARD POST DETAILS FOR FIRE HYDRANTS		
			2012 EDITION		

SECTIONS 2000, 2100 & 2200

LANDSCAPING

SECTION 2000

IRRIGATION



SECTION

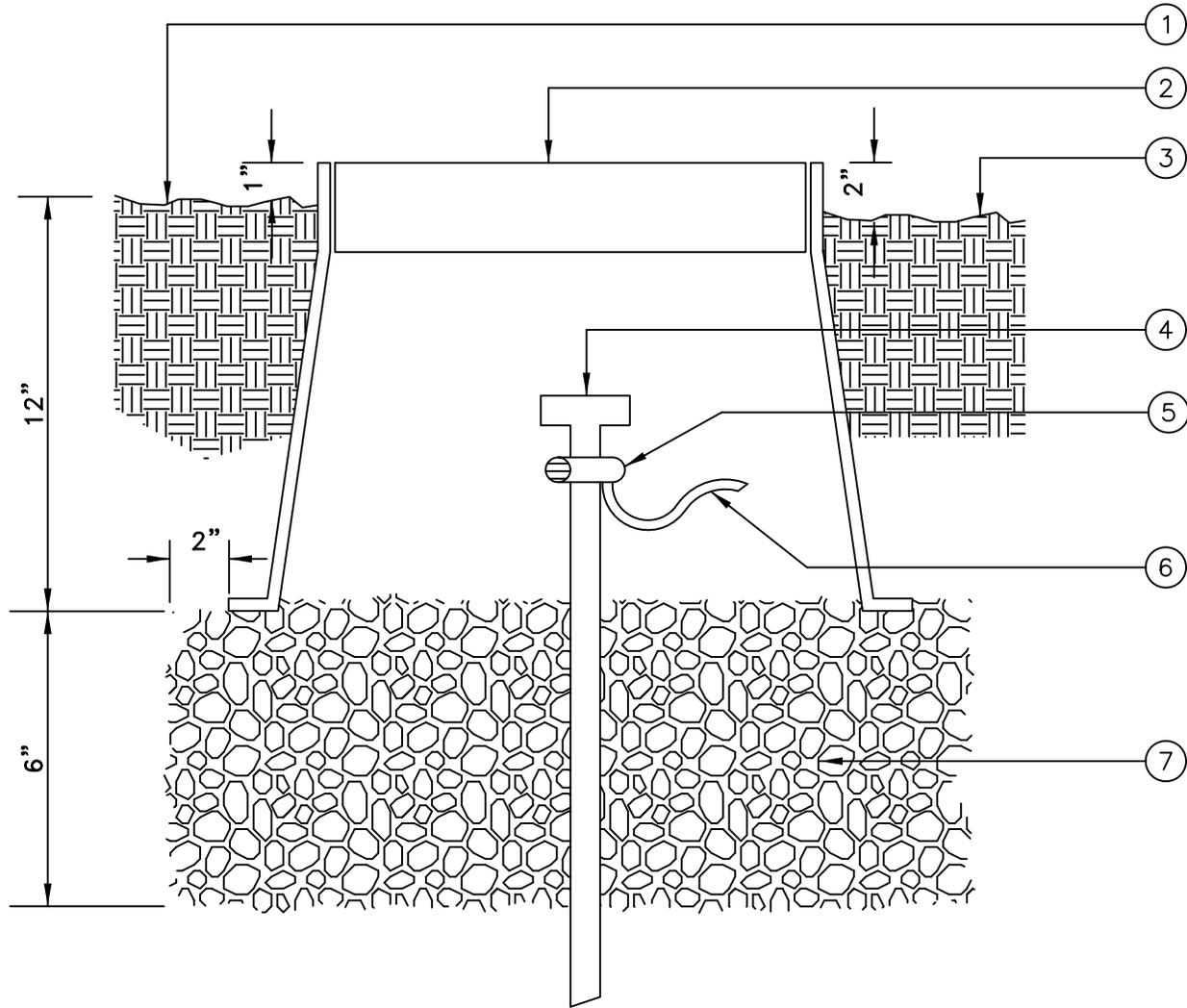
NOTE:

INSTALL PULL BOX AT 200' O.C. AND AT ALL STREET CROSSING OR CHANGE IN DIRECTION OF CONDUIT.

- ① FINISH GRADE IN TURF AREAS
- ② HEAT BRANDED 2" LETTERS "CC" FOR COMPUTER COMMUNICATION
- ③ FINISH GRADE IN GROUND COVER AREAS
- ④ APPROVED PULL BOX (COMMUNICATION CABLE) WITH GREY BOLT DOWN COVER
- ⑤ 2-WIRE PATH/MULTI-STRAND COMMUNICATION WIRE (19 GAUGE) COMMUNICATION CABLE INSTALLED IN CONDUIT, RAIN BIRD MAXI WIRE 36" LOOP IN PULL BOX
- ⑥ PVC SS COUPLING ENDS OF CONDUIT SEALED WITH WATERPROOF SILICONE
- ⑦ 1 1/2" SCH. 40 PVC CONDUIT (UL CERTIFIED)
- ⑧ PVC SCH. 40 - ELECT. 90° SWEEP ELL (UL CERTIFIED)
- ⑨ PEA GRAVEL 6" DEPTH
- ⑩ SEE CITY STD. 2010 FOR TRENCHING DETAIL REQUIREMENTS

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			COMMUNICATION CABLE CONDUIT AND PULL BOX	2001
			2012 EDITION	

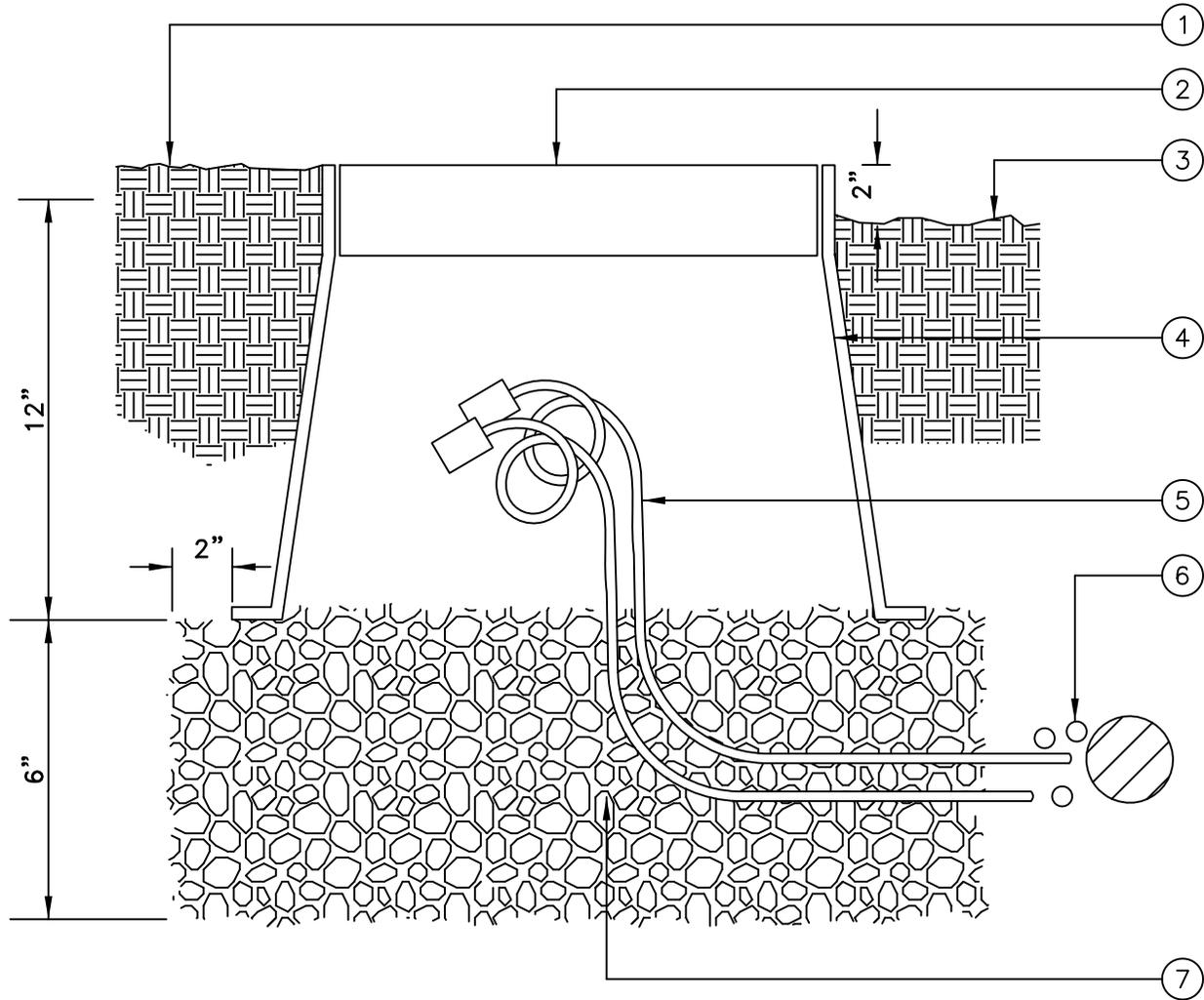


SECTION

- ① FINISH GRADE IN TURF AREAS
- ② ROUND PLASTIC VALVE BOX, BROOKS AMETEK OR EQUAL WITH LOCKING COVER HEAT BRANDED 2" LETTERS "GR" FOR GROUND ROD
- ③ FINISH GRADE IN GROUND COVER AREAS
- ④ 5/8" X 8' COPPER CLAD GROUND ROD
- ⑤ BRASS GROUND ROD CLAMP
- ⑥ #10 BARE COPPER WIRE TO CCU OR CONTROLLER
- ⑦ PEA GRAVEL 6" DEPTH

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			CONTROLLER / CLUSTER CONTROLLER UNIT PAD LAYOUT DIAGRAM	2002

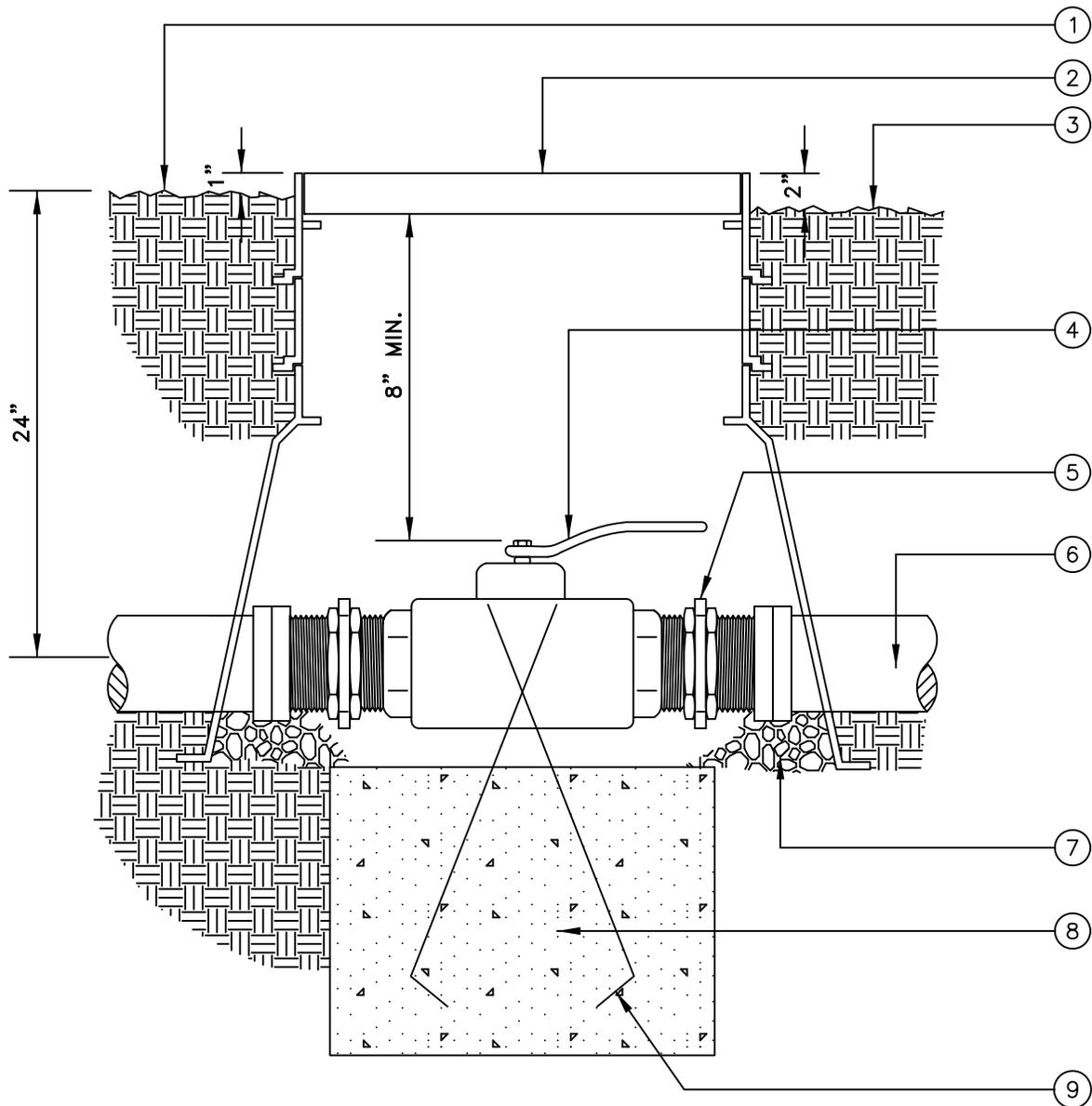


SECTION

- ① FINISH GRADE IN TURF AREAS
- ② HEAT BRANDED 2" LETTERS MSS FOR MOISTURE SENSOR
- ③ FINISH GRADE IN GROUND COVER AREAS
- ④ APPROVED PULL BOX (COMMUNICATION CABLE) WITH GREY BOLT DOWN COVER
- ⑤ (2) MOISTURE SENSOR #14 WIRE FROM CONTROLLER. RUN WIRE WITH MAINLINE WATERPROOF WIRE CAPS AS SHOWN.
- ⑥ MAINLINE AND IRRIGATION WIRE
- ⑦ PEA GRAVEL 6" DEPTH

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			WIRE PULL BOX - FUTURE MOISTURE SENSOR	2003
			2012 EDITION	

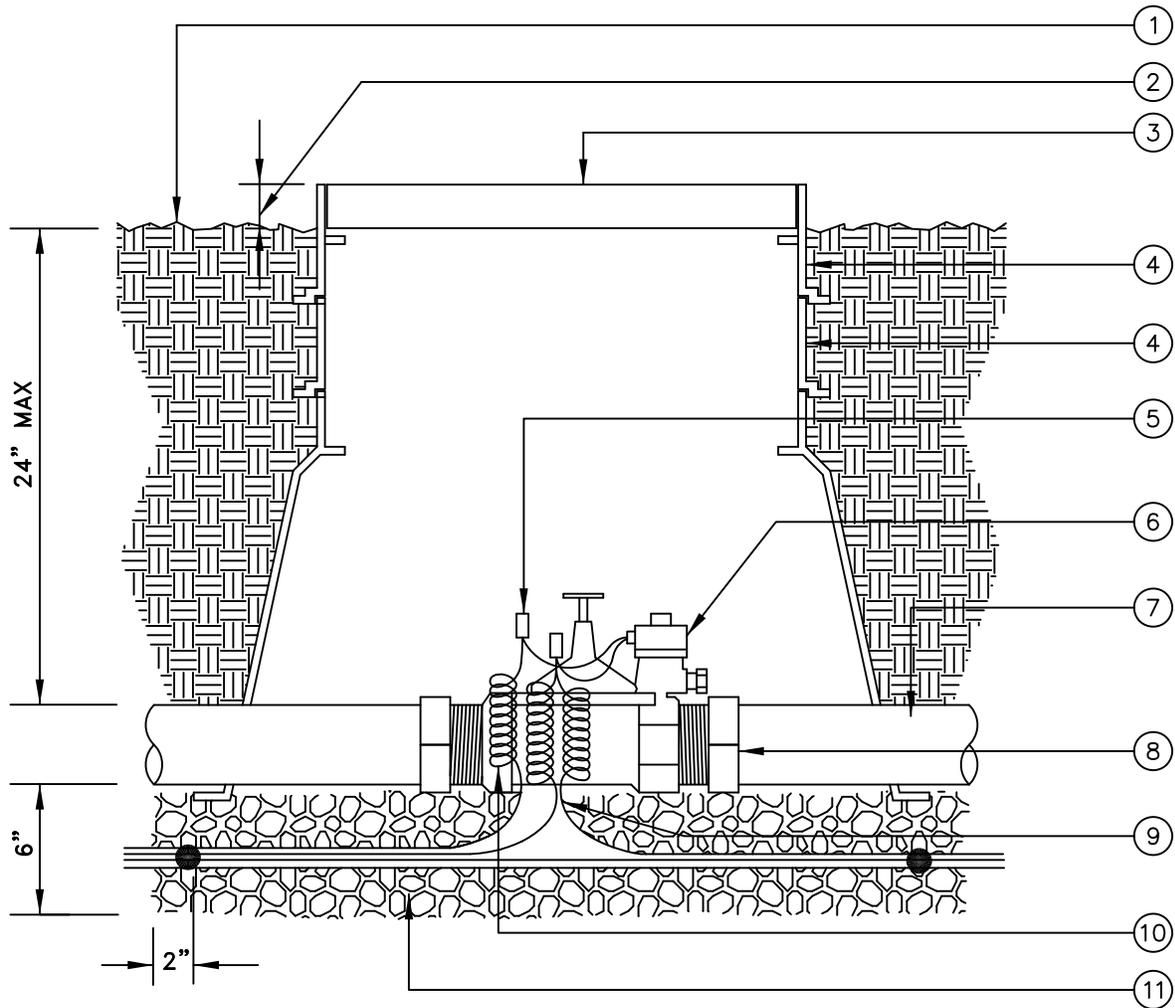


SECTION

- ① FINISH GRADE IN TURF AREAS
- ② ROUND PLASTIC VALVE BOX, BROOKS, AMETEK OR EQUAL WITH LOCKING COVER MARKED "G.V."
- ③ FINISH GRADE IN GROUND COVER AREAS
- ④ NIBCO "BRONZE" MODEL # T S80 OR APPROVED EQUAL
- ⑤ PVC UNION (2 REQUIRED)
- ⑥ PVC MAINLINE
- ⑦ BACKFILL WITH PEA GRAVEL TO SUPPORT PIPE
- ⑧ CLASS 520-C-2500 CONCRETE THRUST BLOCK
- ⑨ REBAR PER MFG.'S SPECS. TYP. ALL EXPOSED REBAR SURFACES SHALL BE COATED WITH CAP-COAT BITUMASTIC NO. 50 PROTECTIVE COATING (2 COATS MINIMUM) OR APPROVED EQUAL

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO. 2004
DATE	DESCRIPTION	APP'D	BALL VALVE - WITH THRUST BLOCK	
			2012 EDITION	



SECTION

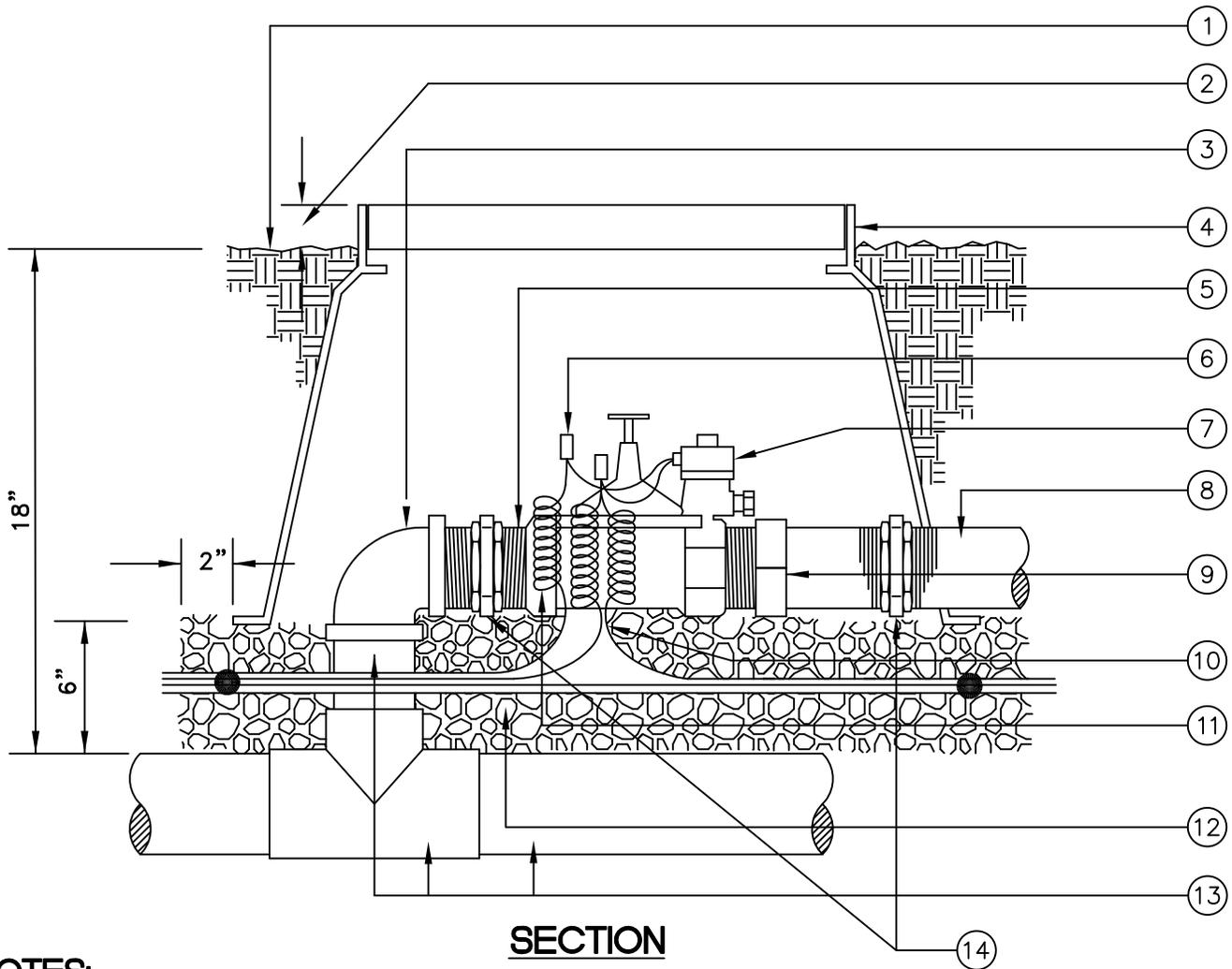
NOTES:

1. ALL PVC PIPE THREADS TO BE COATED WITH "RECTOR SEAL" T-PLUS TWO OR EQUAL.
2. EXPANSION CURL WRAP WIRE AROUND 1/2" DIA. PIPE 15 TIMES.

- | | |
|---|---|
| <ul style="list-style-type: none"> ① FINISH GRADE ② 1" IN TURF AREAS, 2" IN GROUNDCOVER AREAS ③ RECTANGULAR PLASTIC VALVE BOX WITH 9 1/2" X 15 1/2" LOCKING COVER WITH HEAT BRANDED 2" LETTERS "MASTER VALVE" ④ EXTENSION ⑤ WIRE CONNECTORS PER NOTES ⑥ ELECTRIC VALVE PER CITY STD. 2010 | <ul style="list-style-type: none"> ⑦ PVC MAINLINE PER CITY STD. 2010 ⑧ PVC MALE ADAPTOR RING TIGHT ON SIZES 2" OR SMALLER ⑨ COMMON WIRE WITH EXPANSION CURL ⑩ CONTROL WIRE WITH EXPANSION CURL (INSTALL WIRE PER LOCAL CODE, BUNDLE AND TAPE PER NOTES) ⑪ 6" MIN. PEA GRAVEL |
|---|---|

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO. 2006
DATE	DESCRIPTION	APP'D	MASTER CONTROL VALVE	
			2012 EDITION	



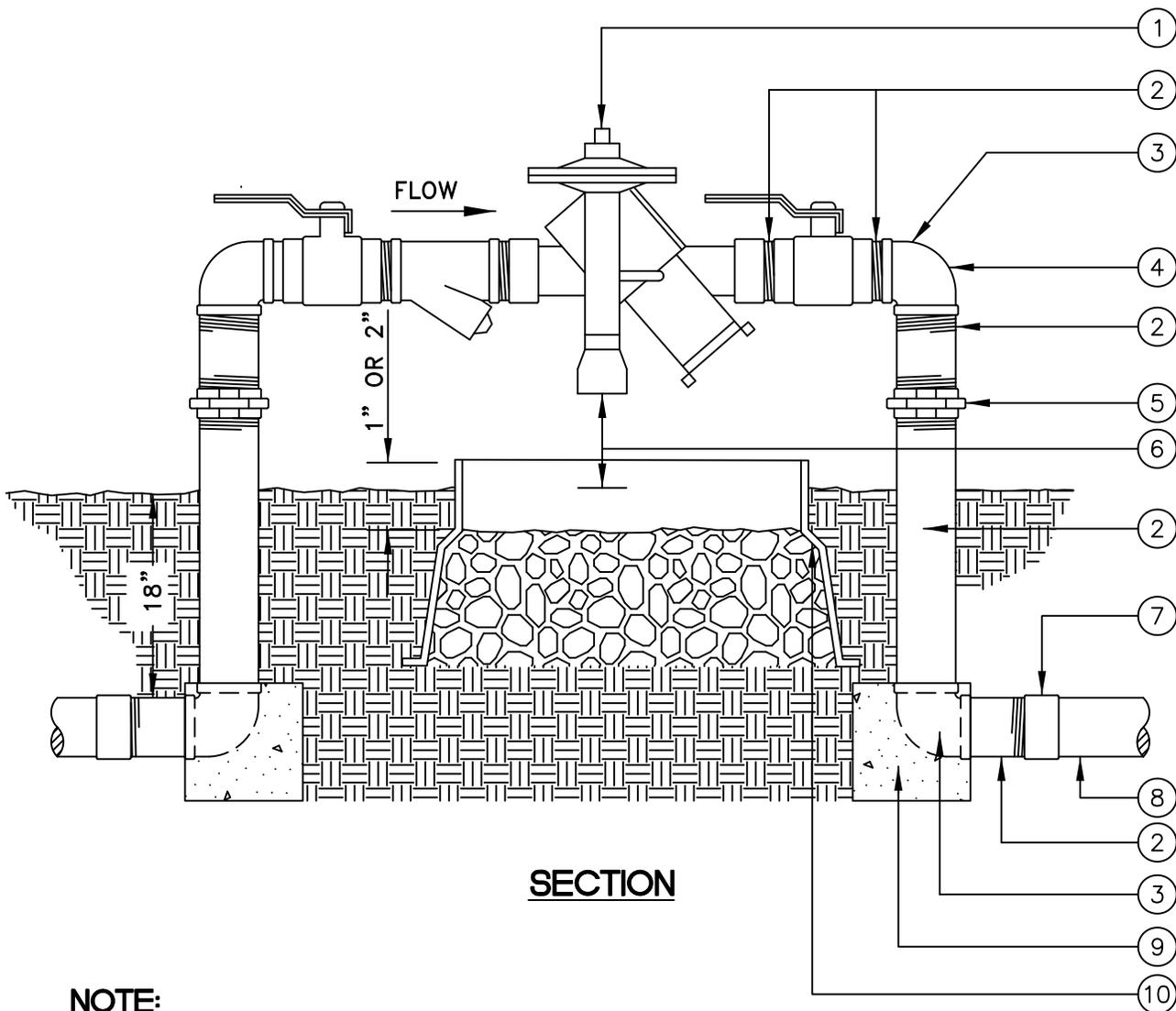
NOTES:

- 1. ALL PVC PIPE THREADS TO BE COATED WITH "RECTOR SEAL" T-PLUS TWO OR EQUAL.
- 2. EXPANSION CURL WRAP WIRE AROUND 1/2" DIA. PIPE 15 TIMES.
- 3. PRESSURE TEST WITHOUT VALVES.

- | | |
|---|---|
| <ul style="list-style-type: none"> ① FINISH GRADE ② 1" IN TURF AREAS, 2" IN GROUND COVER AREAS ③ PVC 90 DEG. ELL ④ RECTANGULAR PLASTIC VALVE BOX—BROOKS, AMETEK OR EQUAL WITH LOCKING COVER MARKED BY HEAT BRANDING 2" HIGH LETTERING WITH CONTROLLER STA. NUMBER ⑤ 3" SCH. 80 PVC NIPPLE ⑥ WIRE CONNECTORS PER MFG. INSTALLATION GUIDE | <ul style="list-style-type: none"> ⑦ ELECTRIC VALVE PER CITY STD. 2010 ⑧ PVC LATERAL LINE PER CITY STD. 2010 ⑨ PVC MALE ADAPTOR ⑩ COMMON WIRE WITH EXPANSION CURL ⑪ CONTROL WIRE WITH EXPANSION CURL (INSTALL WIRE PER LOCAL CODE, BUNDLE AND TAPE PER NOTES) ⑫ 6" MIN. PEA GRAVEL ⑬ PVC MAINLINE (PER LEGEND) AND FITTINGS ⑭ PVC UNION |
|---|---|

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	REMOTE CONTROL VALVE	
			2012 EDITION	
			2007	



SECTION

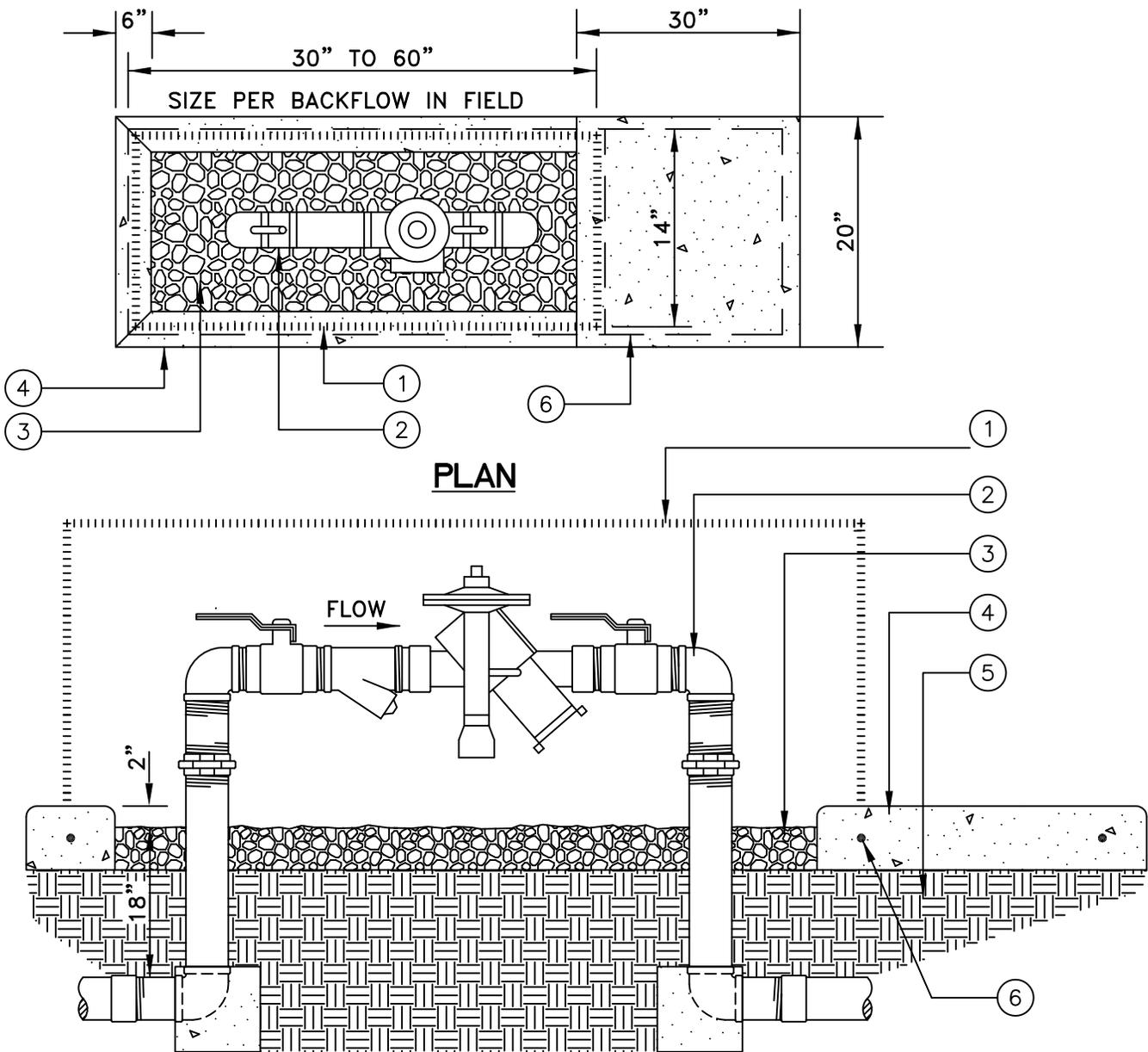
NOTE:

ALL METAL THREADS SHALL BE WRAPPED WITH TEFLON TAPE.

- | | |
|---|--|
| <ul style="list-style-type: none"> ① REDUCED PRESSURE BACKFLOW ASSEMBLY WITH BALL VALVES AND WYE STRAINER ② NIPPLE (ONE REQUIRED EACH SIDE) BRASS ③ 90 DEGREE ELL (ONE REQUIRED EACH SIDE) BRASS ④ REDUCE MAINLINE SIZE HERE IF NECESSARY ⑤ UNION (ONE REQUIRED EACH SIDE) BRASS | <ul style="list-style-type: none"> ⑥ HEIGHT PER CODE ⑦ PVC COUPLING (ONE REQUIRED EACH SIDE) ⑧ PVC MAINLINE PER CITY STD. 2010 ⑨ 12" CUBE MINIMUM CONCRETE THRUST BLOCK ⑩ RECTANGULAR 'JUMBO' PLASTIC VALVE BOX BROOKS, AMTEK OR EQUAL. FILL WITH PEA GRAVEL AS SHOWN (OMIT LID). |
|---|--|

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO. 2008
DATE	DESCRIPTION	APP'D	BACKFLOW ASSEMBLY WITH "Y" STRAINER	
			2012 EDITION	



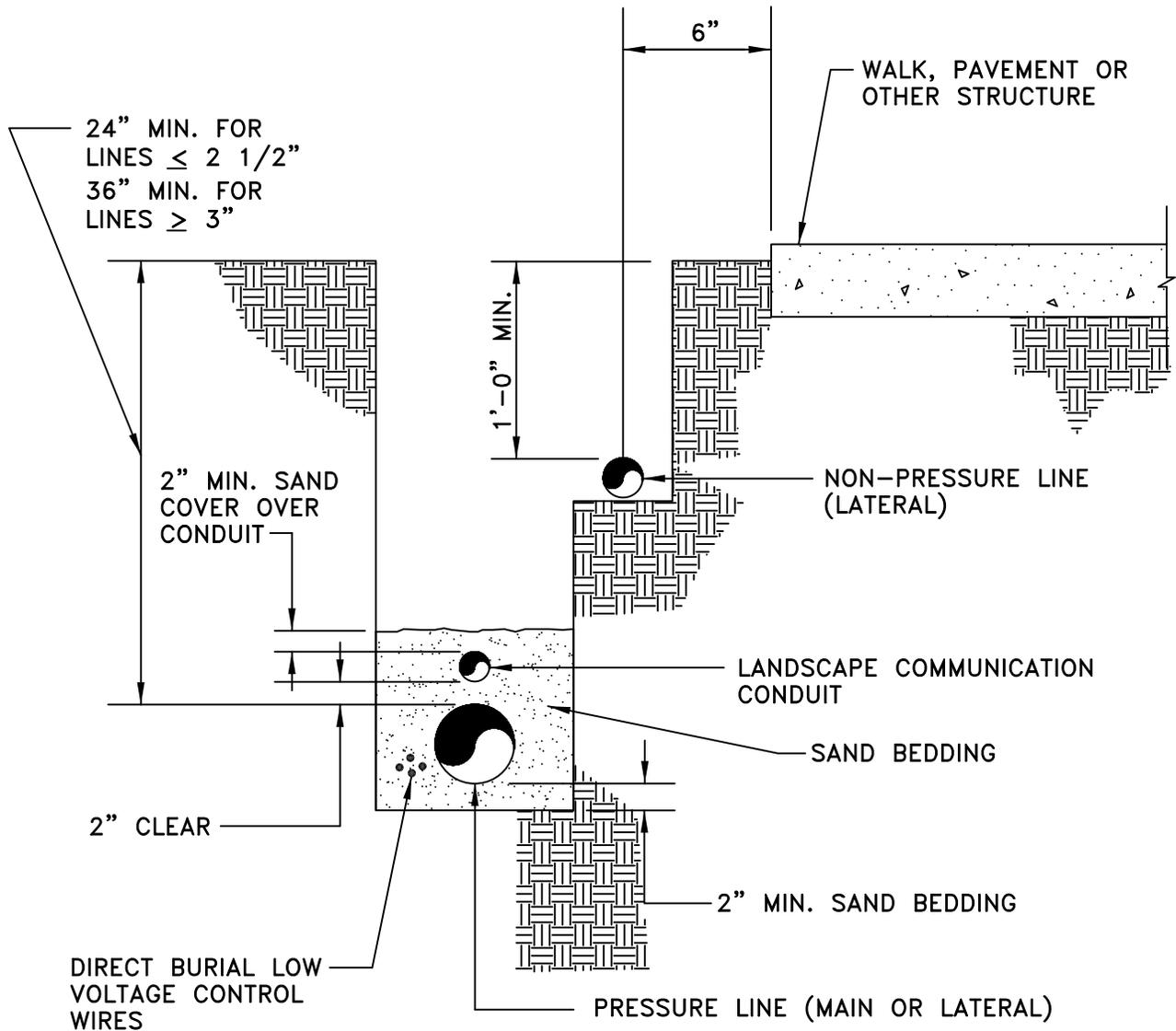
NOTE:

THE CONTRACTOR SHALL OFF-SET THE CONCRETE CURB TO CONFORM TO THE BACKFLOW DEVICE CONFIGURATION.

- ① STRONG BOX BACKFLOW COVER
- ② SEE CITY STD. 2008 FOR BACKFLOW
- ③ 4" DEPTH OF PEA GRAVEL AS SHOWN
- ④ 6" THK. 520-C-2500 CONCRETE CURB & BASE WITH STRONG BOX ANCHOR
- ⑤ SUB-GRADE COMPACTED TO 90% RELATIVE COMPACTION
- ⑥ #4 REBAR CONT. IN CURB & EDGE OF PAD AS SHOWN

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			BACKFLOW ASSEMBLY COVER	2009



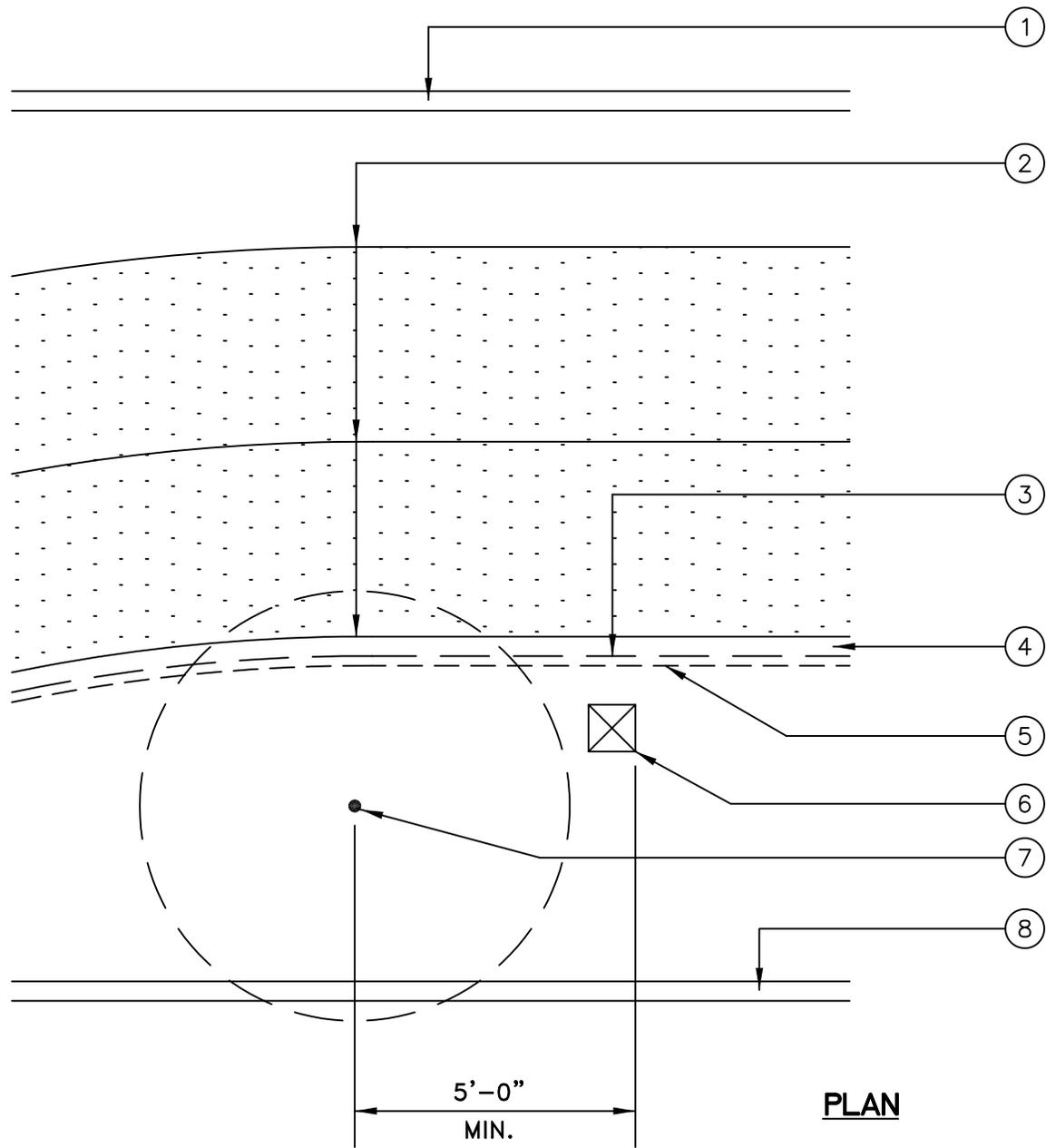
ELEVATION

NOTES:

1. TRENCHING AND BACKFILLING SHALL BE PER STANDARD SPECIFICATIONS.
2. MINIMUM BACKFILL RELATIVE COMPACTION SHALL BE 90%.
3. BUNDLE CONTROL WIRES TOGETHER AND TAPE TO PIPE AT 10 FOOT INTERVALS.
4. THIS STANDARD DOES NOT SUPERCEDE STREET STANDARDS.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			IRRIGATION LINE TRENCHING DETAIL	2010
			2012 EDITION	

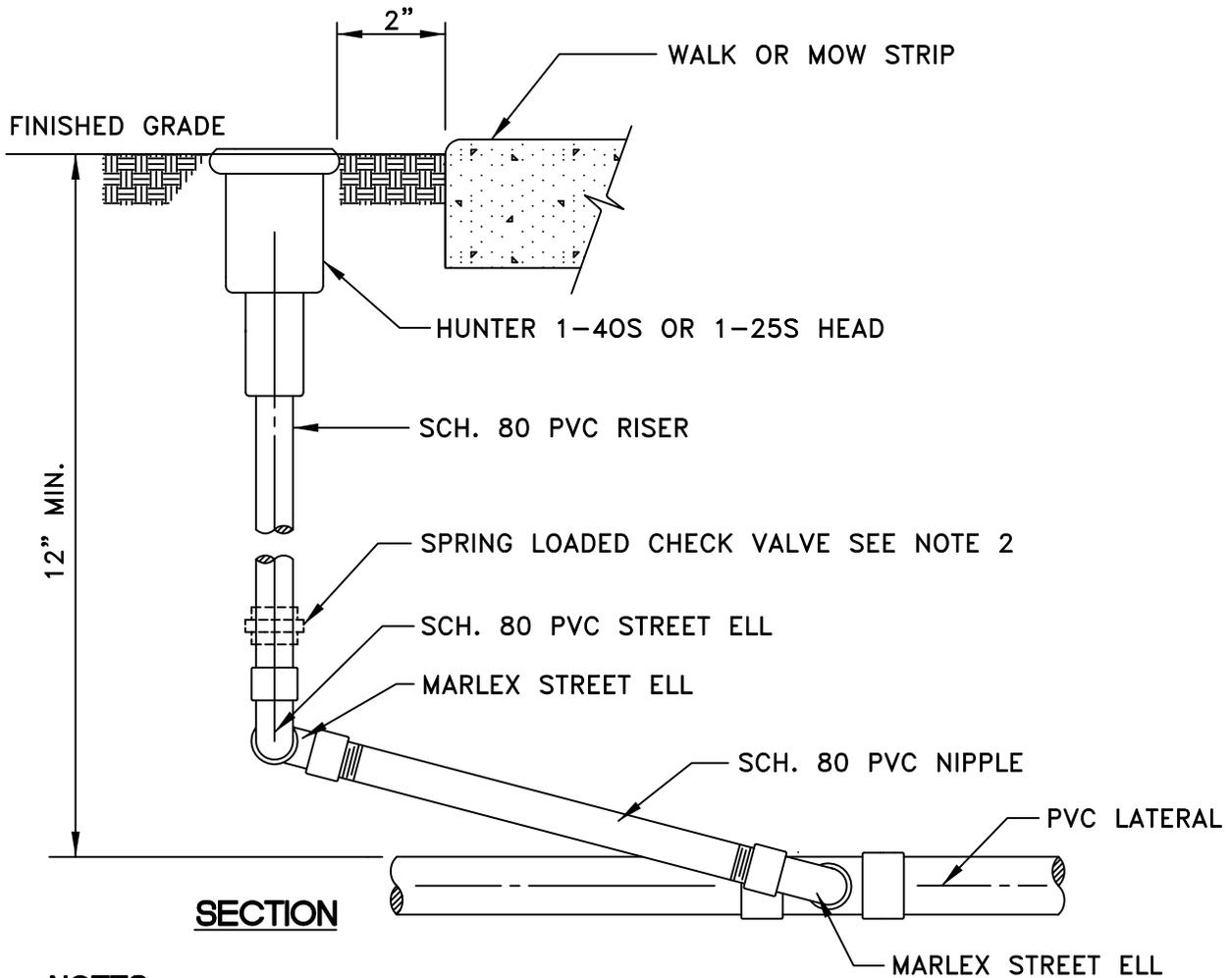
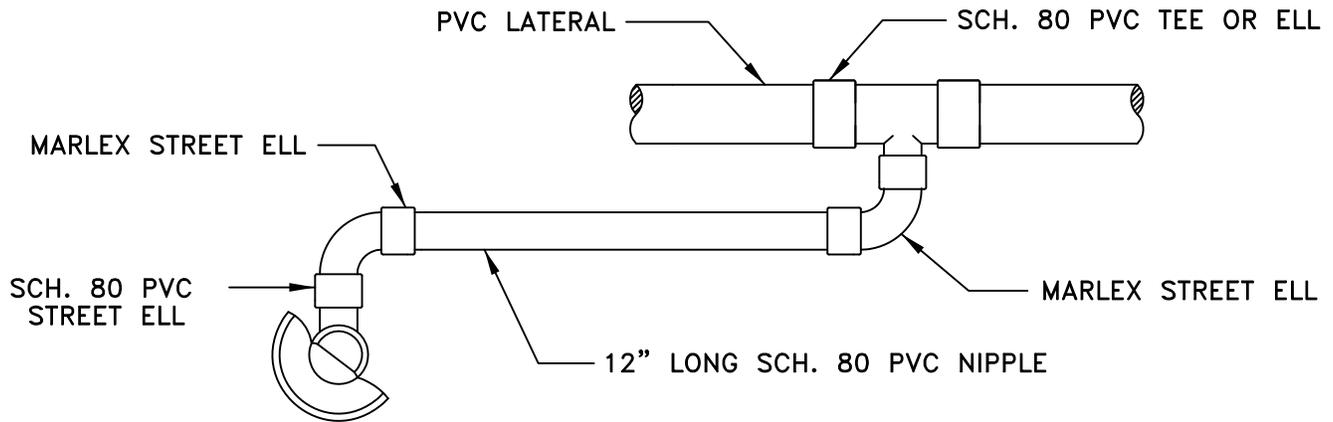


PLAN

- ① CURB PER PLANS OR AS DIRECTED BY CITY
- ② 5' CONCRETE WALK OR 10' RIDING & HIKING TRAIL PER PLANS OR CITY APPROVED
- ③ IRRIGATION MAINLINE
- ④ 1' CLEARANCE BETWEEN WALK AND MAINLINE
- ⑤ COMMUNICATION CONDUIT
- ⑥ IRRIGATION REMOTE CONTROL VALVE OR QUICK COUPLER VALVE
- ⑦ 5' MIN. TREE PLANTING AREA/EQUIPMENT OFFSET
- ⑧ EQUIPMENT OFFSET OR AS DIRECTED BY CITY

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	MAINLINE / EQUIPMENT LOCATION	
				2012 EDITION

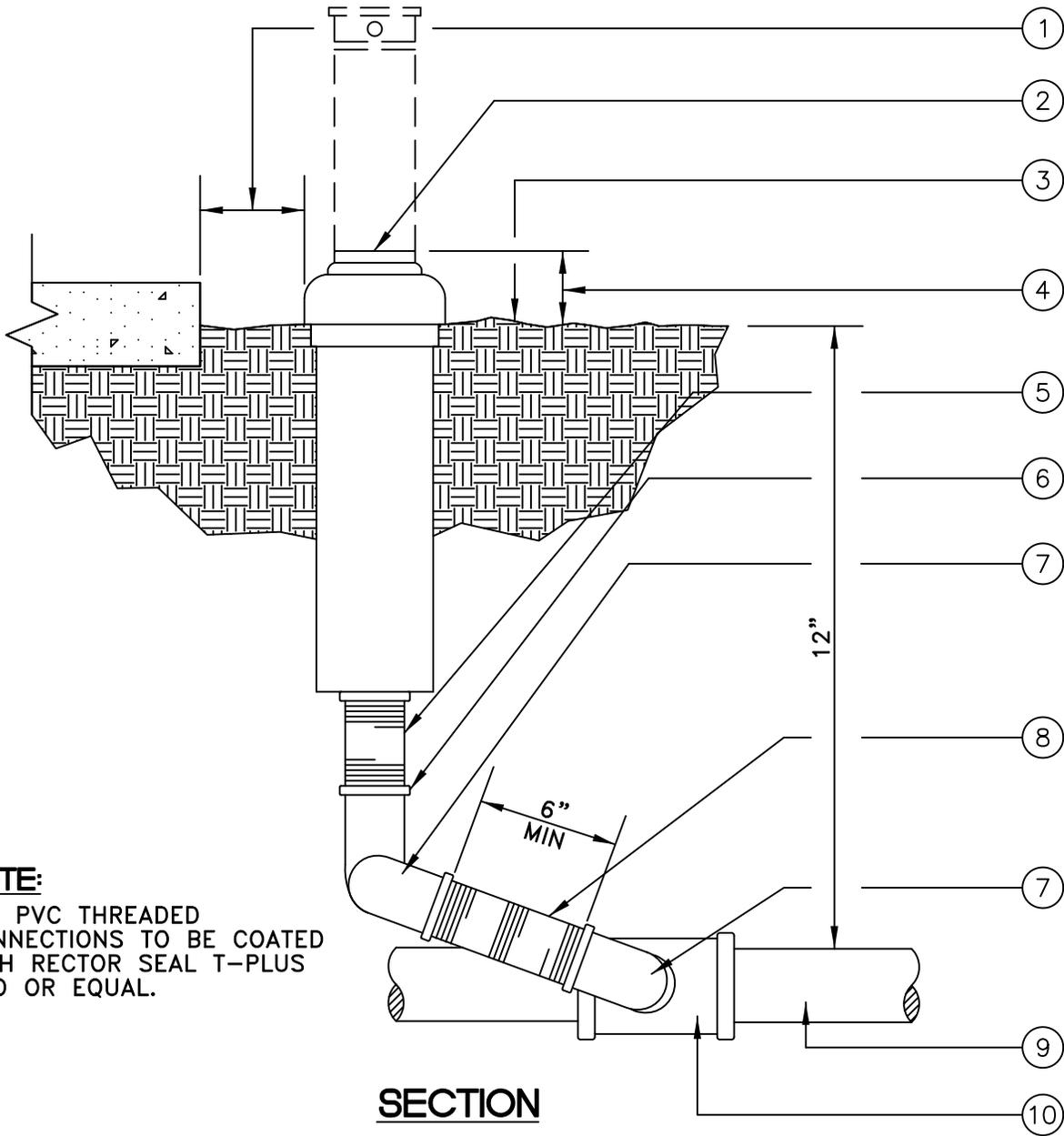


NOTES:

1. AFTER PLANT ESTABLISHMENT LOWER ALL POP-UP HEADS TO FINISH GRADE.
2. SPRING LOADED CHECK VALVE SHALL BE PROVIDED ON ALL HEADS NECESSARY TO PREVENT LINE BLEEDING.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			ROTARY POP-UP HEAD 2012 EDITION	2012



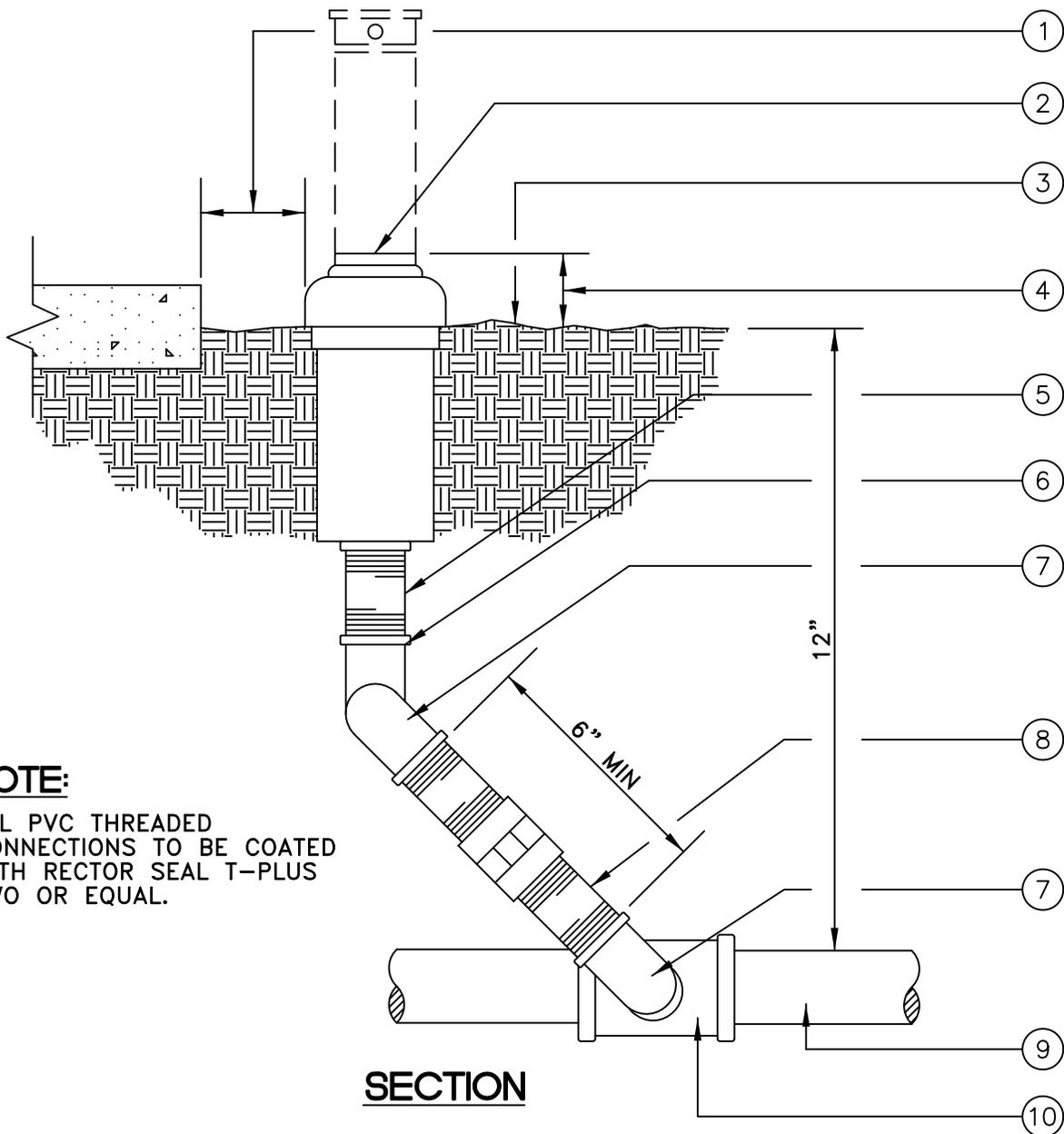
NOTE:
 ALL PVC THREADED CONNECTIONS TO BE COATED WITH RECTOR SEAL T-PLUS TWO OR EQUAL.

SECTION

- ① 2" MAX. @ EDGE OF PAVING IN TURF OR WALL. 2" MIN. FROM CURB OR WALL.
- ② POP-UP HEAD CITY APPROVED
- ③ FINISH GRADE
- ④ 1" IN GROUND COVER
- ⑤ SCH. 80 PVC NIPPLE. LENGTH AS REQUIRED (2" MIN).
- ⑥ PVC ELL (TXT)
- ⑦ MARLEX STREET ELL
- ⑧ SCH. 80 PVC NIPPLE(S) LENGTH AS REQUIRED
- ⑨ PVC LATERAL LINE PER CITY STD. 2010
- ⑩ PVC LATERAL LINE FITTING

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			POP-UP SHRUB HEAD	2013



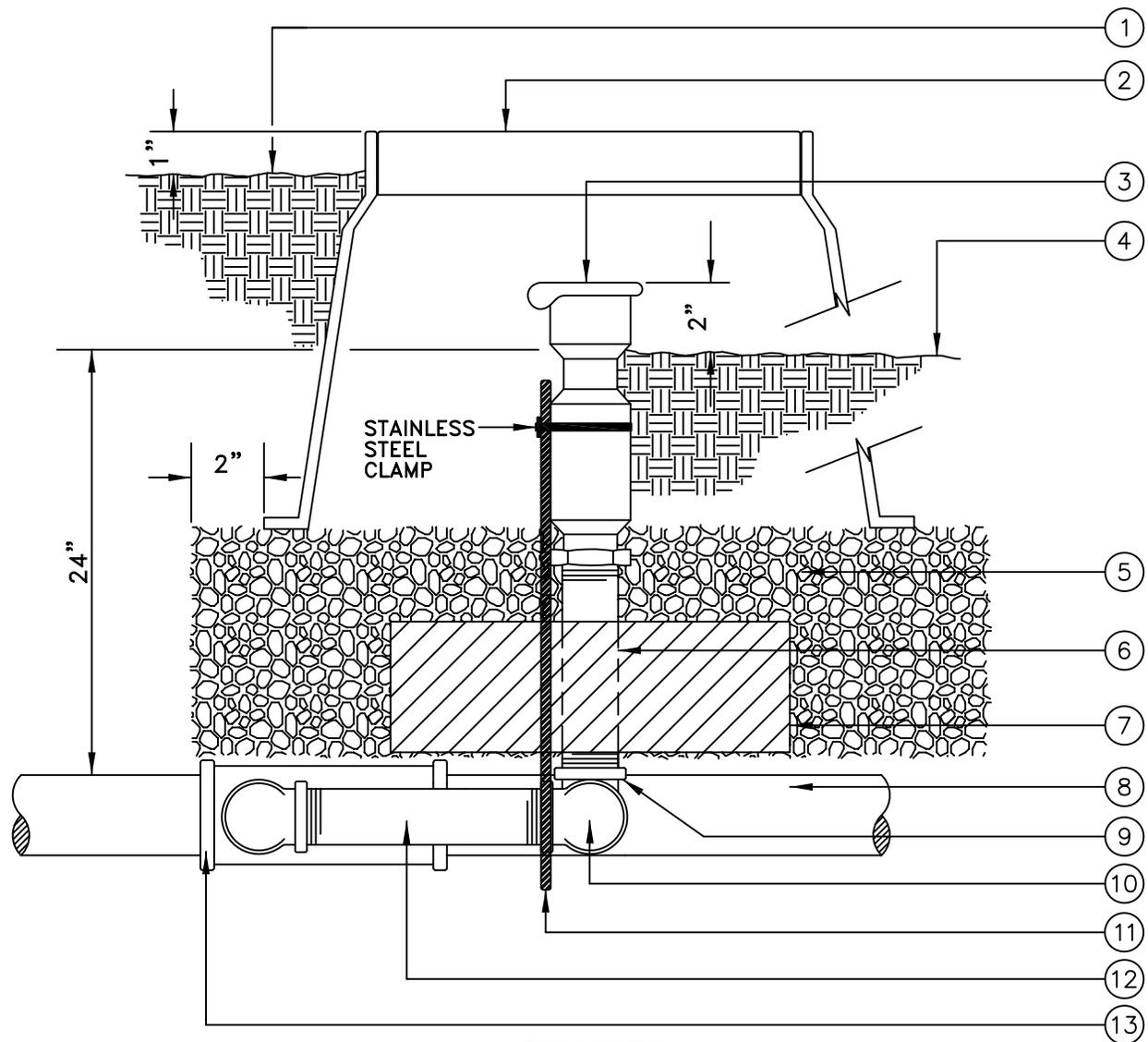
NOTE:

ALL PVC THREADED CONNECTIONS TO BE COATED WITH RECTOR SEAL T-PLUS TWO OR EQUAL.

- ① 2" MAX. Ⓞ EDGE OF PAVING IN TURF OR WALL. 2" MIN. FROM CURB OR WALL.
- ② POP-UP HEAD CITY APPROVED
- ③ FINISH GRADE
- ④ FLUSH WITH FINISH GRADE IN TURF AREAS
- ⑤ PVC SCH. 80 NIPPLE. LENGTH AS REQUIRED (2" MIN).
- ⑥ PVC ELL (TXT)
- ⑦ MARLEX STREET ELL
- ⑧ PVC SCH. 80 NIPPLE(S) LENGTH AS REQUIRED
- ⑨ PVC LATERAL LINE PER CITY STD. 2010
- ⑩ PVC LATERAL LINE FITTING

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			POP-UP TURF HEAD	2014

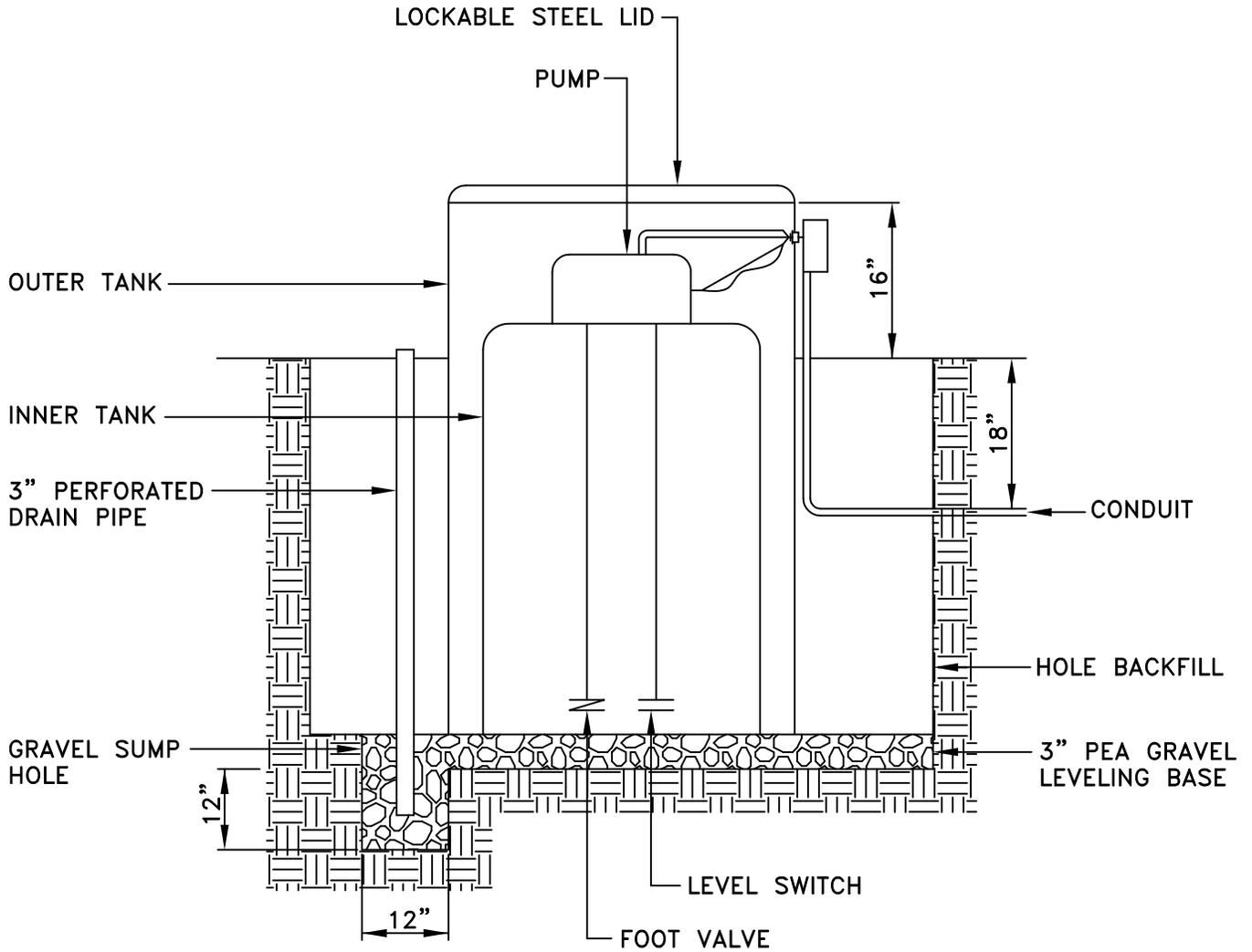


SECTION

- ① FINISH GRADE
- ② INSTALL QUICK COUPLER IN ROUND PLASTIC VALVE BOX BROOKS, AMETEK OR EQUAL WITH LOCKING COVER MARKED BY HEAT BRANDING 2" HIGH LETTERING WITH "QUICK COUPLER".
- ③ QUICK COUPLER PER LEGEND. INSTALL IN GROUND COVER AREA WHENEVER POSSIBLE.
- ④ FINISH GRADE IN GROUND COVER AREAS
- ⑤ ONE (1) CU. FT. OF GRAVEL AT BASE OF VALVE BOX, TURF AREAS ONLY
- ⑥ SCH. 80 PVC NIPPLE LENGTH AS REQUIRED
- ⑦ 4" X 4" X 18" PRECISION MASONRY BLOCK. INSTALL QUICK COUPLER RISER THRU OPEN BLOCK CELL & GROUT CELL WITH NIPPLE SOLID.
- ⑧ PVC MAINLINE
- ⑨ PVC ELL (TXT)
- ⑩ MARLEX STREET ELLS TWO (2) REQUIRED
- ⑪ #4 REBAR 30" LONG ATTACHED WITH STAINLESS STEEL CLAMP
- ⑫ 10" SCH. 80 PVC NIPPLE
- ⑬ PVC MAINLINE FITTING

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO. 2015
DATE	DESCRIPTION	APP'D	QUICK COUPLER	
			2012 EDITION	



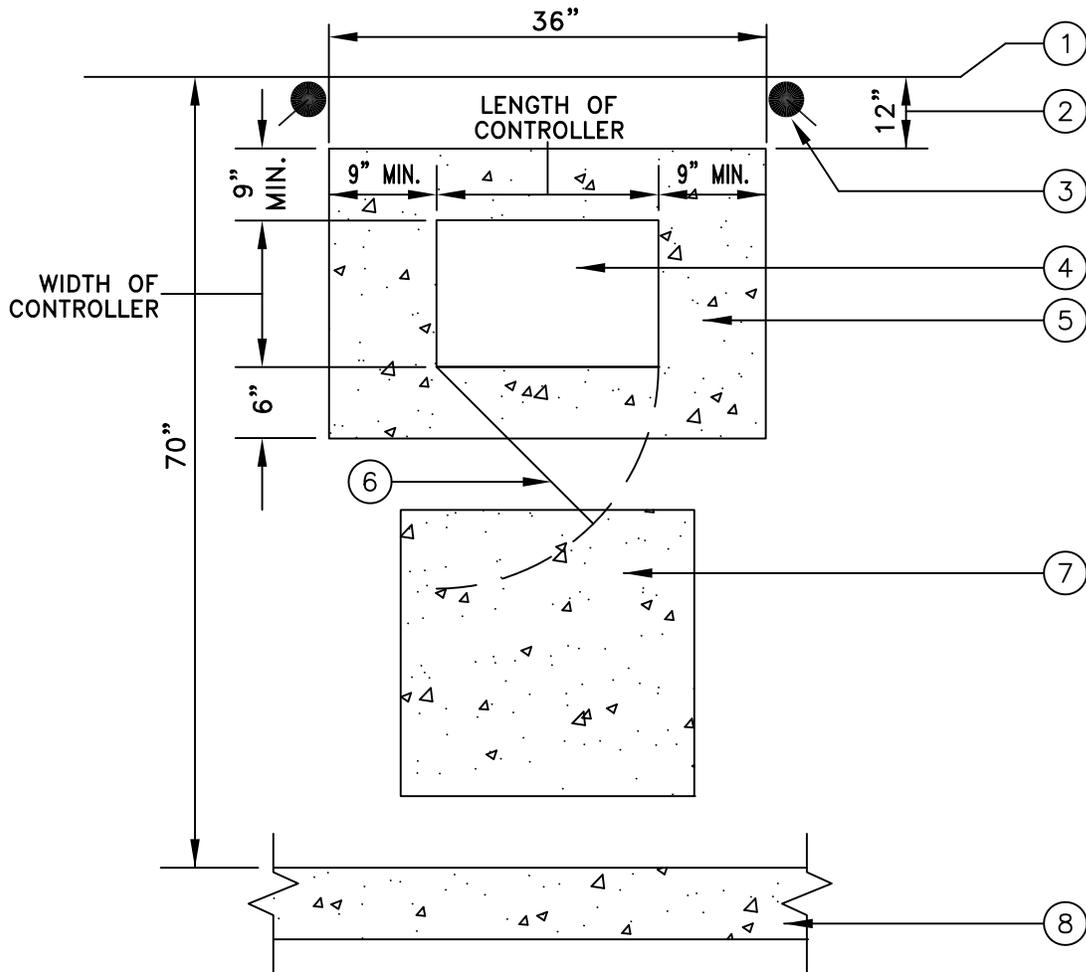
SECTION

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			FERTILIZER INJECTION SYSTEM	2016
			2012 EDITION	

SECTION 2100

IRRIGATION CONTROLLERS



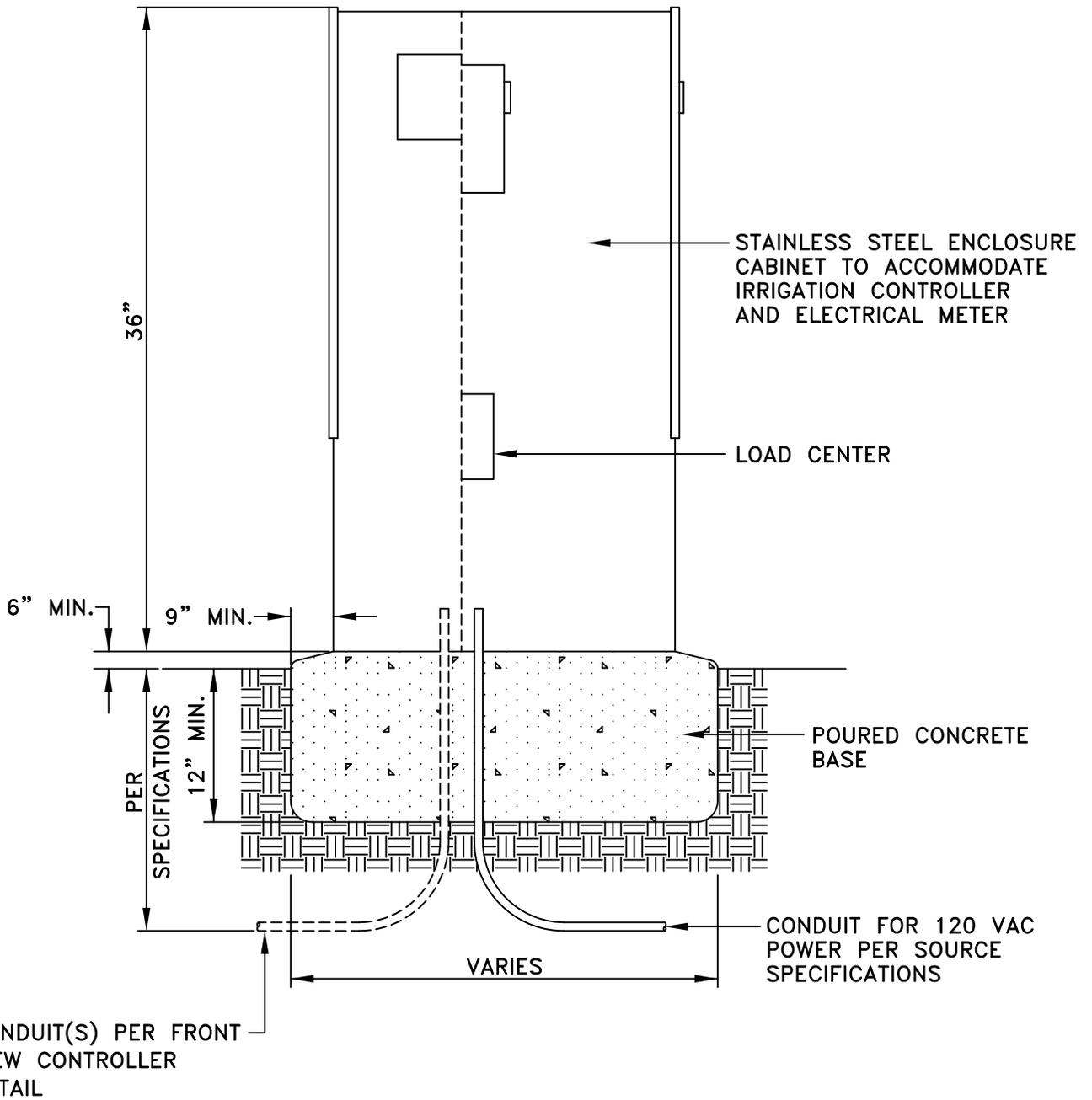
PLAN VIEW

NOTES:

- ① PROPERTY LINE OR WALL (WHERE OCCURS).
- ② 12" MIN. SPACING.
- ③ LATERAL LINE WITH 1/4 SPRAY HEADS. (TYP.)
- ④ ENCLOSURE ASSEMBLY.
- ⑤ 560-C-3250 CONCRETE PAD.
- ⑥ CONTROLLER UNIT DOOR.
- ⑦ CONCRETE STEP CENTERED ON CONCRETE PAD.
- ⑧ CONCRETE MOW STRIP (EXISTING, FOR REFERENCE ONLY).

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			CONTROLLER / CLUSTER CONTROLLER UNIT PAD ON GRADE	2101
			2012 EDITION	



**METER ASSEMBLY - SA SERIES
(SIDE VIEW)**

NOTE:

36" MIN. SPACING REQUIRED FROM BACK OF METERED ASSEMBLY TO PROPERTY LINE OR WALL.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			IRRIGATION CONTROLLER AND METERED ASSEMBLY	2102

DELETED

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			CONTROLLER / CLUSTER CONTROLLER UNIT PAD LAYOUT DIAGRAM	2103
			2012 EDITION	

DELETED

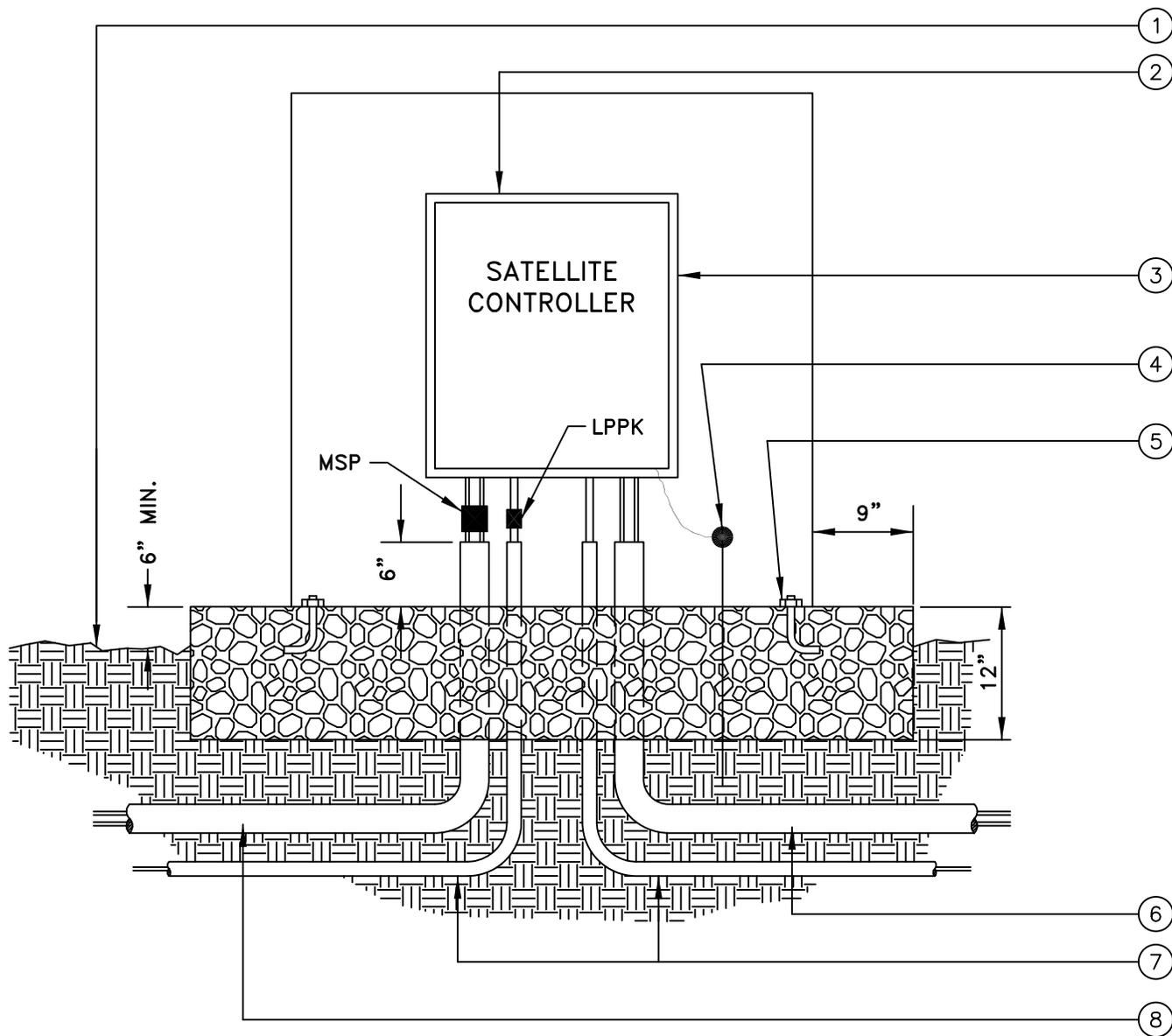
REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			CONTROLLER ENCLOSURE EQUIPMENT LAYOUT DIAGRAM	2104
			2012 EDITION	

DEFERRED

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	IRRIGATION SERVICE / P.O.C. DIAGRAM	
				2105
			2012 EDITION	

DELETED

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	CLUSTER CONTROL UNIT AND ENCLOSURE	
				2106
			2012 EDITION	



ELEVATION

NOTES:

- ① FINISH GRADE – 1" IN TURF AREAS, 2" IN GROUND COVER.
- ② HEAVY DUTY STAINLESS STEEL NEMA 3R RAIN PROOF ENCLOSURE.
- ③ WALL MOUNT CONTROLLER PER LEGEND. INSTALL PER MANUFACTURER'S INSTRUCTION.
- ④ GROUND ROD IN CONTROLLER ENCLOSURE.
- ⑤ ANCHOR BOLTS PER MANUFACTURER'S SPECS.
- ⑥ 2" MIN. CONDUIT FOR IRRIGATION VALVE CONTROL WIRES.
- ⑦ 1" 120 VOLT ELECTRIC CONDUIT AND WIRE (UL APPROVED).
- ⑧ 1 1/2" COMMUNICATION CONDUIT AND WIRE (IF REQUIRED).

NO SCALE

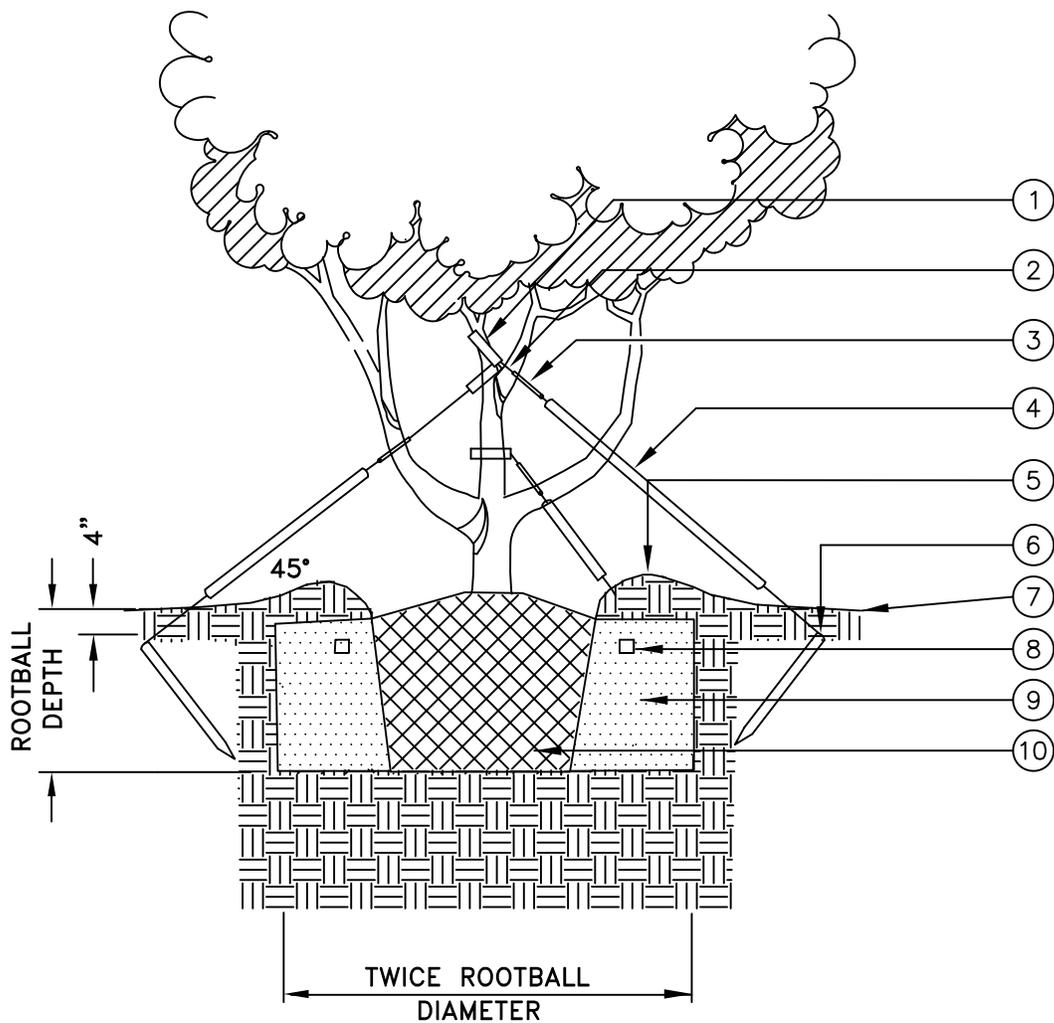
REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			CONTROLLER ENCLOSURE	2107

DELETED

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	MAXICOM SYSTEM SCHEMATIC	
				2012 EDITION

SECTION 2200

PARKWAY TREES



SECTION

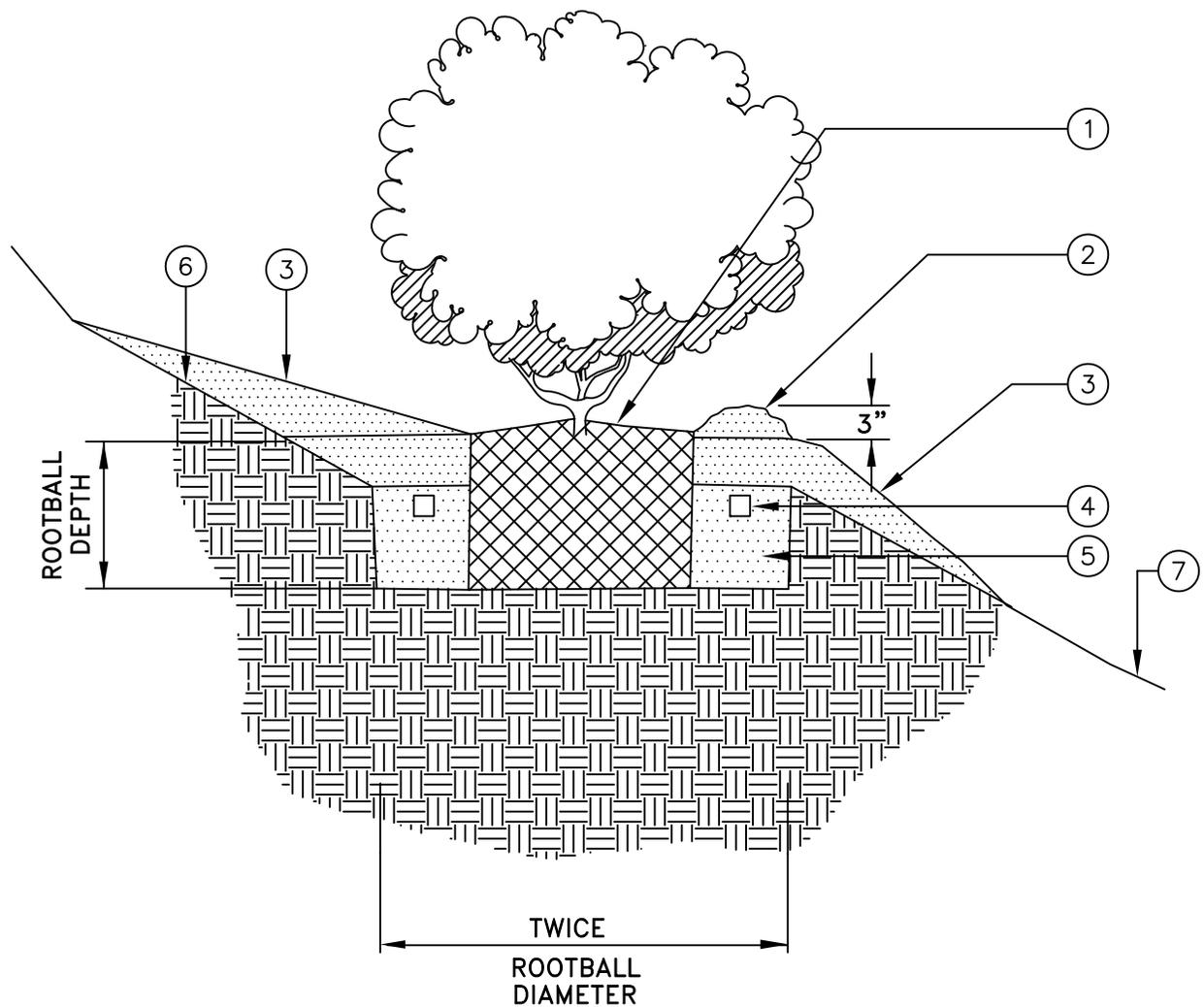
NOTES:

GUYS MUST BE APPROVED BY REPRESENTATIVE OF FIELD SERVICES PRIOR TO USE. FOUR (4) GUYS ARE REQUIRED FOR ALL MEDIAN AND SHRUB AREAS, TURF AREAS MAY HAVE THREE (3) GUYS AT 120 DEGREES APART.

- ① PROTECTIVE COLLAR.
- ② 1/4" DIA. GALV. CABLE LENGTH AS REQUIRED.
- ③ 6-1/2" TURNBUCKLE.
- ④ 1/2" DIA. X 40" SCH. 40 PVC, WHITE PIPE, WIRE IN PLACE.
- ⑤ 3" HIGH WATER RETENTION BASIN. FORM FROM PLANT PIT EXCAVATION. MAY BE RAKED OUT PRIOR TO OTHER WORK AS DIRECTED BY LANDSCAPE ARCHITECT.
- ⑥ 2" DIA. X 15 GA. GALV. IRON PIPE STAKES 2'-0" LENGTH, DRILL TWO 5/16" DIA. HOLES 3/4" FROM TOP TO SECURE WIRE.
- ⑦ FINISH GRADE.
- ⑧ FERTILIZER TABLETS.
- ⑨ NATIVE CLEAN BACKFILL (NO MATERIAL LARGER THAN 1/4").
- ⑩ TREE ROOTBALL: 5 & 15 GAL 1" ABOVE GRADE, 24" BOX & LARGER 3" ABOVE GRADE, TAPER ROOTBALL TO GRADE.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			STANDARD SPECIMEN TREE, 36" BOX AND LARGER	2201



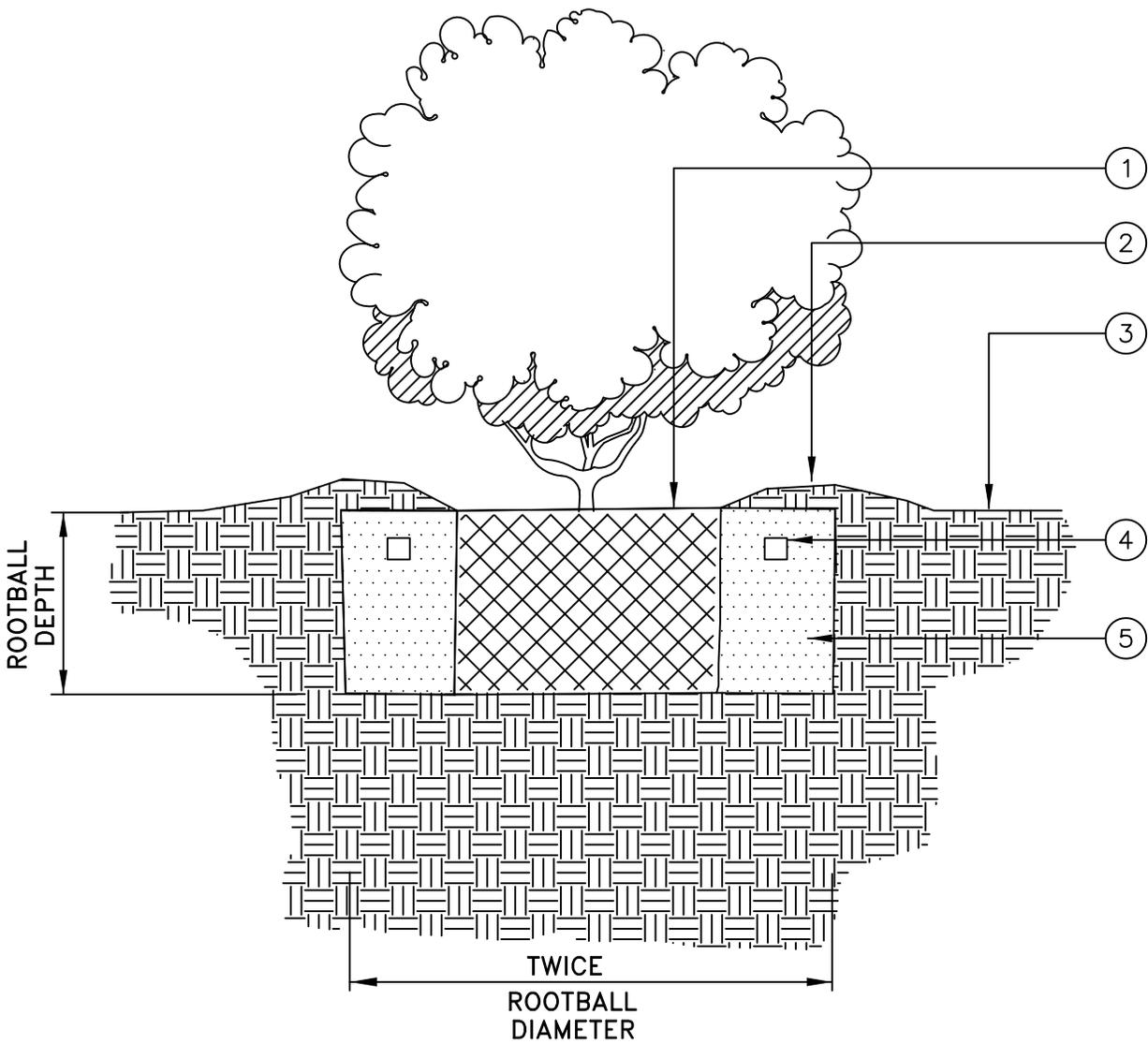
SECTION

NOTES:

- ① SHRUB ROOTBALL: CROWN SHALL BE 3" ABOVE FINISH SLOPE GRADE @ LOWER AND UPHILL SIDE.
- ② 3" HIGH WATER RETENTION BASIN, FORM WITH SOIL EXCAVATED FROM UPHILL SIDE OF SHRUB.
- ③ 1:1 MAX. COMPACTED TAPER FILL.
- ④ FERTILIZER TABLETS.
- ⑤ NATIVE CLEAN BACKFILL (NO MATERIAL LARGER THAN 1/4").
- ⑥ EXISTING SLOPE
- ⑦ EROSION CONTROL REQUIREMENTS MUST BE IMPLEMENTED AS NEEDED

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	SHRUB PLANTING ON SLOPE	
				2202
			2012 EDITION	



SECTION

- ① ROOTBALL CROWN SHALL BE 1/4"–1/2" ABOVE FLUSHED WITH FINISH GRADE. AVOID PLANTING SHRUBS DIRECTLY IN FRONT OF IRRIGATION SPRAY HEADS. PROVIDE CLEARANCE WHEN POSSIBLE.
- ② 3" HIGH WATER RETENTION BASIN. FORM FROM PLANT PIT EXCAVATION. MAY BE RAKED OUT PRIOR TO OTHER WORK AS DIRECTED BY LANDSCAPE ARCHITECT.
- ③ FINISH GRADE
- ④ FERTILIZER TABLETS.
- ⑤ NATIVE CLEAN BACKFILL (NO MATERIAL LARGER THAN 1/4").

NO SCALE

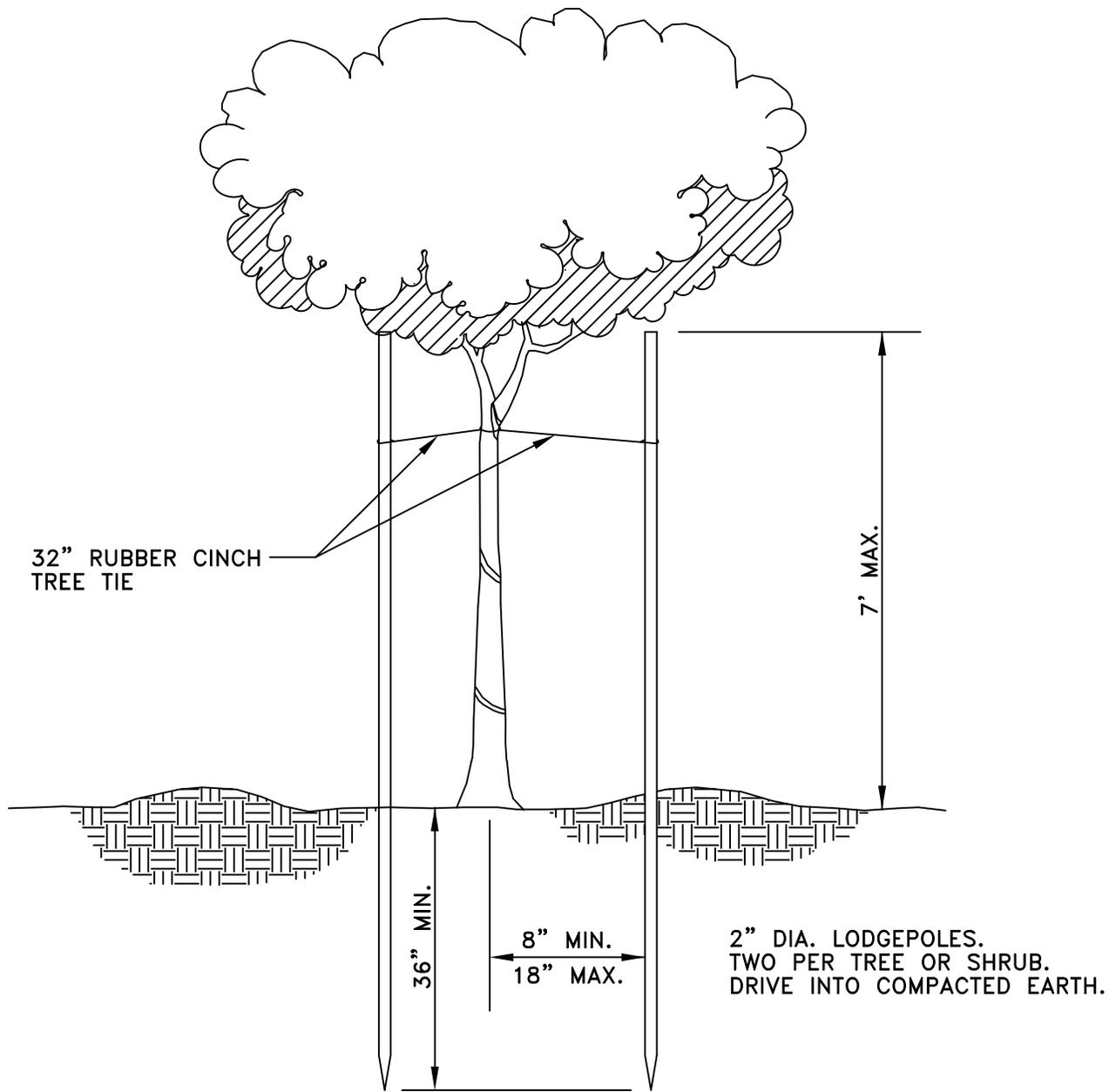
REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			SHRUB AND VINE PLANTING	2203

DELETED

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO. 2204
DATE	DESCRIPTION	APP'D	GROUNDCOVER LOCATION AND SPACING	
			2012 EDITION	

DELETED

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO. 2206
DATE	DESCRIPTION	APP'D	TREE PLANTING WITH ROOT BARRIER	
			2012 EDITION	



NOTES:

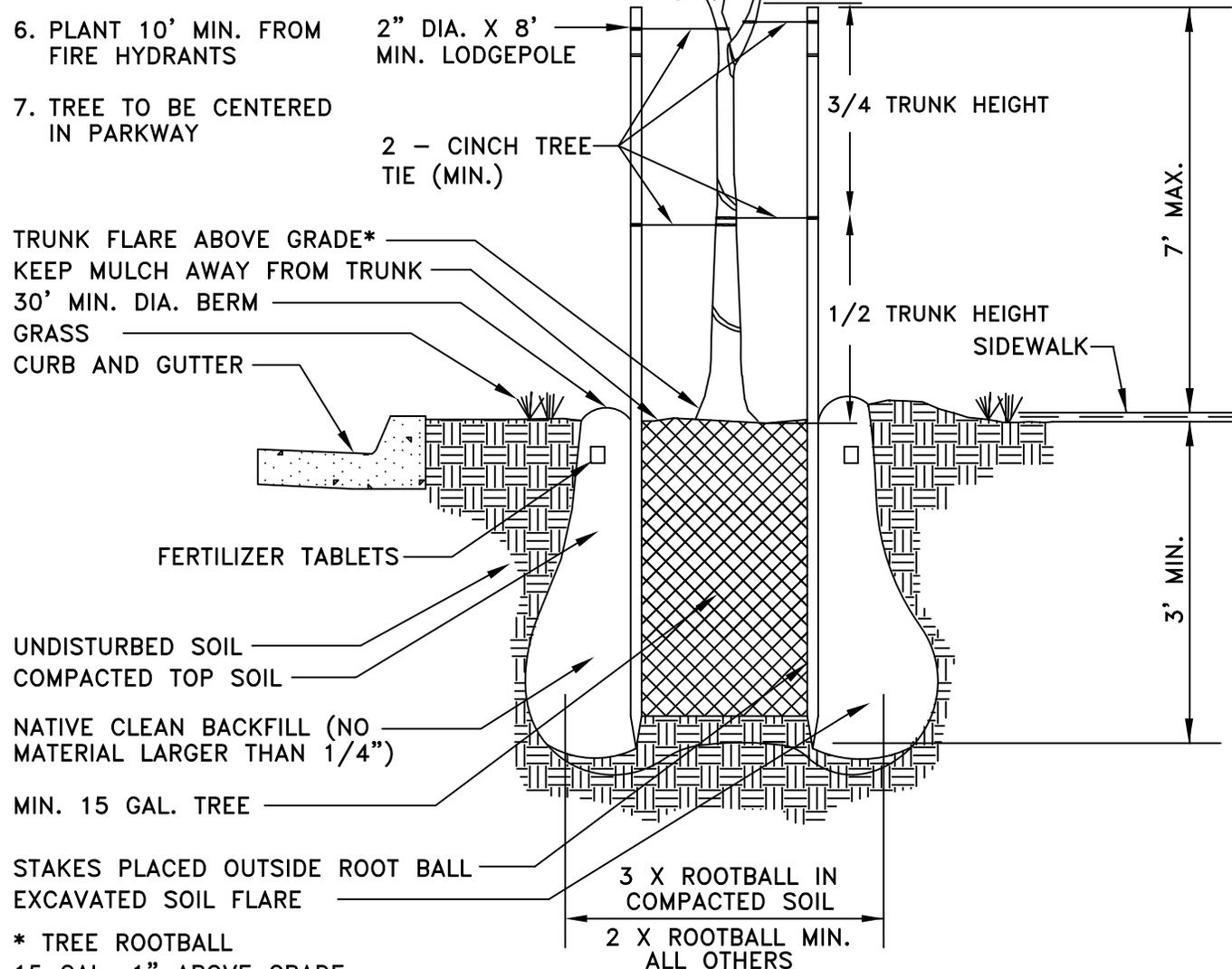
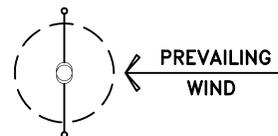
1. USE PROTECTIVE STAKING FOR PLANTS IN TURF WHERE SHOWN ON THE PLANS.
2. STAKES SHALL BE PRESSURE TREATED PER APWA RECOMMENDED PRACTICE.
3. SEE SPECIFICATIONS FOR SPECIFIC DETAILS PER SIZE.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			PROTECTIVE STAKING	2207

PLANTING REQUIREMENTS

1. TREE SPACING 35' MIN TO 50' MAX.
2. PLANT 50' MIN. FROM BCR ON THE APPROACH TO AN INTERSECTION AND 50' FROM THE ECR ON THE EXIT SIDE.
3. PLANT 10' MIN. FROM EDGE OF DRIVE APPROACH
4. PLANT 10' MIN. FROM UTILITY AND SEWER LINES
5. PLANT 20' MIN. FROM STREET LIGHT STANDARDS AND POWER POLES
6. PLANT 10' MIN. FROM FIRE HYDRANTS
7. TREE TO BE CENTERED IN PARKWAY

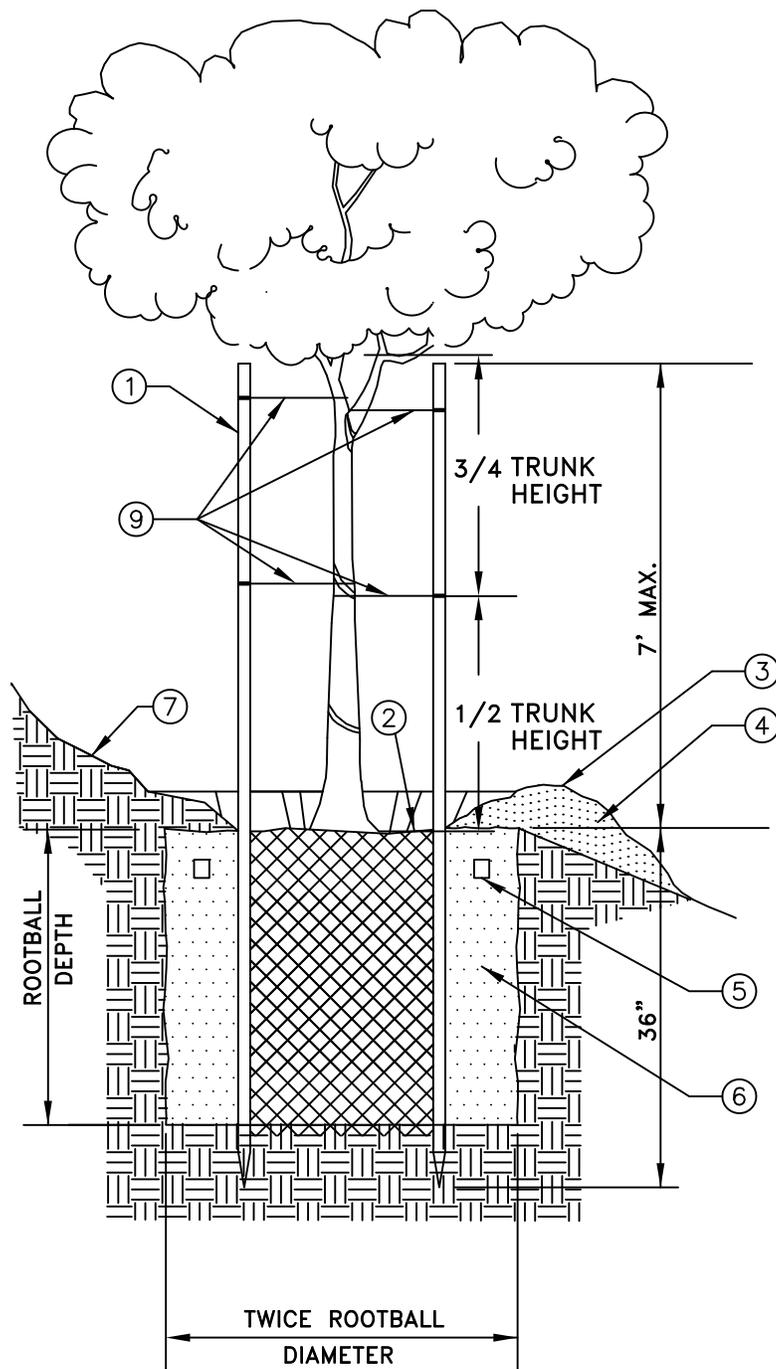


- * TREE ROOTBALL
- 15 GAL.-1" ABOVE GRADE
 - 24" BOX-2" ABOVE GRADE
 - 36" BOX-3" ABOVE GRADE
 - 46" BOX & LARGER-3" ABOVE GRADE

SECTION

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			STANDARD TREE PLANTING IN PARKWAYS, 24' BOX AND SMALLER 2012 EDITION	2208



SECTION

NOTES:

- ① 3" DIAMETER WOOD POLE OUTSIDE ROOTBALL.
- ② TREE ROOTBALL: 5 AND 15 GAL. 1" ABOVE GRADE, 24" BOX AND LARGER 3" ABOVE GRADE, TAPER ROOTBALL TO GRADE
- ③ 3" HIGH WATER RETENTION BASIN, FORM WITH SOIL EXCAVATED FROM UPHILL SIDE OF TREE
- ④ 1:1 MAXIMUM COMPACTED TAPER FILL AT FRONT PLANT PIT
- ⑤ FERTILIZER TABLETS.
- ⑥ NATIVE CLEAN BACKFILL (NO MATERIAL LARGER THAN 1/4")
- ⑦ EXISTING SLOPE.
- ⑧ RUBBER CINCH TREE TIE.

NO SCALE

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D		
			STANDARD TREE PLANTING ON SLOPES, 24" BOX AND SMALLER	2209
			2012 EDITION	

DELETED

REVISIONS			CITY OF TUSTIN DEPARTMENT OF PUBLIC WORKS	STD. NO.
DATE	DESCRIPTION	APP'D	TREE ROOT BARRIER	
			2012 EDITION	2210